VOLUME 74 [W. B. No. 1472] NUMBER 7

UNITED STATES DEPARTMENT OF COMMERCE
HENRY A. WALLACE, *Secretary*
WEATHER BUREAU - - F. W. Reichelderfer, *Chief*

MONTHLY WEATHER REVIEW

JULY 1946

CONTENTS

For sale by the Superintendent of Documents, U. S. Government Printing Office
Washington 25, D. C. - - See page 4 of cover for prices

MONTHLY WEATHER REVIEW

Acting Editor, Robert N. Culnan

VOL. 74, No. 7
W. B. No. 1472

JULY 1946

CLOSED SEPTEMBER 5, 1946
ISSUED OCTOBER 15, 1946

METEOROLOGICAL AND CLIMATOLOGICAL DATA FOR JULY 1946

AEROLOGICAL OBSERVATIONS

[For description of change in Table 1 and charts, see REVIEW, January 1946, p. 6]

TABLE 1.—*Mean dynamic height (geopotential) in units of 0.98 dynamic meter, temperature in degrees centigrade, and relative humidity in percent, for standard pressures, as obtained by radiosondes, during July 1946*

STATIONS AND MEAN SURFACE PRESSURES

Standard pressure surface (mb.)	Albany, N. Y. (1,005.5 mb.)				Albuquerque, N. Mex. (839.8 mb.)				Apalachicola, Fla. (1,016.1 mb.)				Atlanta, Ga. (982.6 mb.)				Auburn, Calif. (955.7 mb.)				Big Spring, Tex. (926.4 mb.)				Bismarck, N. Dak. (955.7 mb.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
Surface	31	93	19.6	77	31	1,620	26.0	37	31	5	26.0	85	31	300	23.9	82	29	501	26.1	39	31	774	30.0	33	30	505	22.6	63
1,000	31	141	20.1	75	31	46	(*)	----	31	147	25.2	85	31	146	(*)	----	29	99	(*)	----	31	82	(*)	----	30	105	(*)	----
950	31	587	19.3	67	31	519	(*)	----	31	597	22.5	80	31	597	23.2	77	29	559	26.0	38	31	549	(*)	----	30	555	22.8	59
900	31	1,047	16.4	71	31	1,008	(*)	----	31	1,067	20.0	74	31	1,066	20.5	77	29	1,028	23.3	35	31	1,032	28.3	33	30	1,027	20.8	52
850	31	1,532	13.0	73	31	1,513	(*)	----	31	1,558	17.0	71	31	1,559	17.4	78	29	1,523	19.8	35	31	1,536	24.5	37	30	1,519	17.5	54
800	31	2,039	9.8	64	31	2,045	23.0	35	31	2,074	14.1	67	31	2,075	14.2	75	29	2,042	16.4	32	31	2,057	20.4	43	30	2,034	14.1	55
750	31	2,580	7.3	54	31	2,606	18.5	39	31	2,616	11.1	64	31	2,622	10.8	71	29	2,592	13.1	28	31	2,617	15.7	52	30	2,583	10.6	52
700	31	3,139	4.7	50	31	3,190	13.6	46	31	3,190	7.8	61	31	3,190	7.2	67	29	3,163	9.4	33	31	3,198	10.8	62	30	3,147	7.3	47
650	31	3,743	1.4	45	31	3,811	8.3	56	30	3,799	4.2	60	31	3,800	4.0	63	28	3,775	5.2	36	31	3,815	6.7	53	30	3,759	3.5	46
600	30	4,379	−2.0	----	31	4,464	2.8	68	30	4,445	0.6	56	31	4,444	0.7	53	28	4,423	1.1	35	31	4,465	2.9	46	30	4,399	−0.6	45
550	30	5,067	−5.9	----	31	5,163	−2.5	73	30	5,140	−3.3	54	31	5,141	−3.1	48	28	5,115	−3.5	38	30	5,164	−1.5	38	30	5,093	−5.0	39
500	30	5,806	−10.3	----	31	5,912	−7.6	73	29	5,887	−7.6	51	30	5,888	−7.5	53	28	5,862	−8.5	36	29	5,917	−6.3	36	30	5,832	−9.6	35
450	30	6,618	−15.5	----	31	6,733	−12.5	64	29	6,706	−12.3	49	30	6,713	−12.6	54	28	6,680	−13.8	----	28	6,742	−11.3	----	30	6,652	−14.8	----
400	30	7,489	−21.6	----	30	7,618	−18.1	49	28	7,591	−18.2	50	30	7,592	−18.0	48	28	7,556	−20.3	----	28	7,628	−17.3	----	28	7,524	−21.2	----
350	30	8,458	−29.0	----	30	8,602	−25.1	----	28	8,574	−25.3	----	30	8,575	−25.3	----	28	8,530	−28.0	----	28	8,614	−24.3	----	28	8,495	−28.4	----
300	29	9,544	−37.2	----	30	9,703	−33.6	----	28	9,673	−33.5	----	30	9,674	−33.7	----	28	9,617	−36.4	----	27	9,717	−32.9	----	28	9,583	−36.3	----
250	29	10,778	−46.8	----	30	10,956	−43.7	----	28	10,926	−43.7	----	29	10,926	−43.8	----	28	10,851	−46.0	----	25	10,979	−42.2	----	28	10,826	−44.8	----
200	29	12,225	−55.8	----	27	12,421	−54.8	----	28	12,385	−55.5	----	29	12,386	−55.2	----	27	12,300	−54.8	----	24	12,454	−52.6	----	27	12,292	−52.5	----
175	27	13,068	−58.1	----	23	13,270	−58.3	----	26	13,224	−61.8	----	28	13,224	−61.0	----	23	13,150	−58.4	----	21	13,297	−57.9	----	23	13,163	−54.6	----
150	26	14,030	−60.2	----	12	14,214	−64.4	----	24	14,165	−67.5	----	25	14,169	−65.6	----	19	14,116	−61.4	----	14	14,259	−63.0	----	18	14,150	−57.7	----
125	23	15,160	−61.5	----	----	----	----	----	13	15,251	−69.9	----	15	15,269	−67.3	----	10	15,244	−64.8	----	----	----	----	----	9	15,266	−59.3	----
100	15	16,529	−61.5	----	----	----	----	----	9	16,576	−70.0	----	10	16,613	−66.4	----	----	----	----	----	----	----	----	----	----	----	----	----
80	6	17,895	−59.7	----	----	----	----	----	5	17,909	−68.3	----	5	17,978	−64.1	----	----	----	----	----	----	----	----	----	----	----	----	----

Standard pressure surface (mb.)	Boise, Idaho (913.3 mb.)				Brownsville, Tex. (1,013.4 mb.)				Buffalo, N. Y. (991.8 mb.)				Burwood, La. (1,015.8 mb.)				Caribou, Maine (992.8 mb.)				Charleston, S. C. (1,015.4 mb.)				Ciudad Victoria, Mexico (973.5 mb.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
Surface	31	868	27.5	32	31	6	27.8	80	31	221	19.4	73	30	2	26.5	86	31	191	15.6	80	31	14	23.8	92	31	335	30.6	46
1,000	31	55	(*)	----	31	124	26.8	81	31	147	(*)	----	30	141	25.5	85	31	129	(*)	----	31	148	24.3	89	31	92	(*)	----
950	31	522	(*)	----	31	583	23.9	77	31	594	18.9	63	30	594	22.4	80	31	568	16.2	66	31	601	22.6	81	31	553	28.9	48
900	31	997	28.4	24	31	1,050	22.6	55	31	1,053	16.1	64	30	1,061	19.6	75	31	1,025	13.5	66	31	1,068	19.9	77	31	1,031	24.9	51
850	31	1,501	24.6	25	31	1,546	20.4	45	31	1,537	12.8	66	30	1,552	16.7	71	31	1,504	10.4	69	31	1,560	17.1	73	31	1,529	20.7	56
800	31	2,026	20.0	28	31	2,067	17.2	43	31	2,044	10.1	56	30	2,067	13.8	63	31	2,006	7.3	69	31	2,076	14.3	70	31	2,050	16.7	60
750	31	2,580	15.3	33	31	2,614	13.5	43	31	2,585	7.3	47	30	2,614	10.7	58	31	2,543	4.7	61	31	2,625	11.4	68	31	2,600	12.7	61
700	31	3,157	10.3	38	31	3,191	9.6	46	31	3,144	4.5	42	30	3,182	7.5	56	30	3,096	2.1	61	31	3,193	8.0	70	31	3,173	9.2	50
650	31	3,773	5.4	41	31	3,804	5.7	45	31	3,748	1.4	36	30	3,793	4.1	51	30	3,694	−1.2	58	31	3,805	4.5	65	31	3,788	5.3	50
600	31	4,417	0.4	46	31	4,452	1.7	44	31	4,385	−2.2	36	30	4,439	0.2	51	29	4,327	−4.7	54	31	4,451	1.0	64	31	4,433	1.3	50
550	31	5,111	−4.8	47	31	5,150	−2.5	42	31	5,073	−6.2	40	30	5,167	−3.6	54	28	5,009	−8.4	----	31	5,145	−3.1	62	31	5,128	−2.5	48
500	31	5,853	−9.8	43	31	5,898	−7.0	41	31	5,811	−10.7	----	30	5,880	−8.0	49	28	5,740	−12.8	----	31	5,895	−7.2	56	31	5,879	−6.9	47
450	31	6,666	−15.4	----	30	6,722	−11.9	41	31	6,621	−15.9	----	30	6,701	−12.9	41	26	6,548	−17.9	----	31	6,718	−11.9	54	31	6,702	−11.8	45
400	31	7,538	−21.3	----	30	7,606	−17.6	39	31	7,492	−21.9	----	30	7,582	−18.6	43	26	7,410	−24.0	----	31	7,603	−17.8	58	31	7,586	−17.4	47
350	31	8,508	−28.8	----	30	8,591	−24.8	----	30	8,458	−29.1	----	28	8,563	−25.5	----	26	8,370	−31.1	----	31	8,588	−24.8	----	31	8,570	−24.8	----
300	30	9,503	−37.2	----	30	9,693	−33.2	----	29	9,534	−37.0	----	28	9,662	−33.8	----	24	9,453	−38.9	----	30	9,688	−33.3	----	31	9,668	−33.2	----
250	30	10,829	−46.2	----	29	10,949	−43.1	----	27	10,778	−46.3	----	28	10,915	−43.4	----	24	10,679	−47.6	----	30	10,942	−43.5	----	31	10,925	−43.0	----
200	29	12,279	−54.4	----	29	12,414	−54.5	----	25	12,230	−55.1	----	28	12,379	−54.8	----	23	12,125	−55.1	----	30	12,402	−55.5	----	31	12,389	−54.9	----
175	28	13,132	−57.5	----	27	13,254	−61.0	----	24	13,084	−58.8	----	25	13,221	−60.8	----	23	12,978	−56.8	----	28	13,243	−61.2	----	31	13,229	−60.8	----
150	22	14,085	−59.6	----	25	14,200	−66.7	----	22	14,047	−60.8	----	16	14,154	−65.7	----	22	13,946	−58.1	----	24	14,197	−66.7	----	28	14,181	−65.6	----
125	12	15,207	−61.6	----	11	15,296	−71.1	----	20	15,178	−61.6	----	7	15,277	−68.7	----	20	15,084	−58.1	----	20	15,294	−68.7	----	17	15,278	−69.9	----
100	----	----	----	----	----	----	----	----	9	16,567	−61.4	----	----	----	----	----	14	16,482	−58.4	----	9	16,646	−68.8	----	8	16,615	−71.6	----
80	----	----	----	----	----	----	----	----	7	17,976	−61.5	----	----	----	----	----	12	17,893	−58.4	----	----	----	----	----	----	----	----	----

See footnotes at end of table.

TABLE 1.—*Mean dynamic height (geopotential) in units of 0.98 dynamic meter, temperature in degrees centigrade, and relative humidity in percent, for standard pressures, as obtained by radiosondes during July 1946*—Continued

Standard pressure surface (mb.)	Columbia, Mo. (987.6 mb.)				Dodge City, Kans. (925.1 mb.)				El Paso, Tex. (881.7 mb.)				Ely, Nev. (811.2 mb.)				Fort Worth, Tex. (989.3 mb.)				Glasgow, Mont. (938.3 mb.)				Grand Junction, Colo. (853.1 mb.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
Surface	31	239	25.5	61	31	787	27.5	39	31	1,195	28.7	33	31	1,908	21.4	37	31	211	29.9	51	30	648	24.4	47	30	1,474	23.6	30
1,000	31	128	(*)	----	31	85	(*)	----	31	58	(*)	----	31	43	(*)	----	31	115	(*)	----	30	82	(*)	----	30	41	(*)	----
950	31	586	25.0	53	31	551	(*)	----	31	526	(*)	----	31	514	(*)	----	31	580	28.4	50	30	542	(*)	----	30	517	(*)	----
900	31	1,054	22.2	55	31	1,030	27.6	37	31	1,015	(*)	----	31	997	(*)	----	31	1,052	25.1	52	30	1,012	23.1	41	30	1,001	(*)	----
850	31	1,548	18.7	58	31	1,534	24.2	38	31	1,521	27.1	32	31	1,497	(*)	----	31	1,551	21.2	55	30	1,508	19.8	42	30	1,506	26.8	30
800	31	2,066	15.5	57	31	2,061	20.5	40	31	2,052	22.8	35	31	2,029	22.6	33	31	2,074	17.5	54	30	2,026	15.6	47	30	2,039	24.1	27
750	31	2,615	12.5	52	31	2,614	16.2	45	31	2,612	18.1	41	31	2,590	18.5	32	31	2,620	13.6	50	30	2,576	11.2	51	30	2,599	19.4	30
700	31	3,186	9.0	50	31	3,197	11.5	50	31	3,195	13.0	47	31	3,173	13.5	36	30	3,199	10.2	38	30	3,142	6.7	52	30	3,186	14.4	35
650	31	3,800	5.4	48	31	3,812	6.9	52	31	3,815	7.6	56	31	3,794	8.2	42	29	3,808	6.5	29	30	3,749	2.6	48	30	3,803	9.0	42
600	31	4,447	1.5	45	31	4,464	2.2	51	31	4,467	2.6	61	31	4,447	2.6	51	29	4,462	2.5	----	30	4,389	−1.4	43	30	4,463	3.1	52
550	31	5,142	−2.6	44	31	5,163	−2.5	48	31	5,166	−2.4	61	31	5,144	−3.1	62	28	5,160	−1.8	----	30	5,075	−5.5	39	30	5,161	−2.8	61
500	31	5,892	−7.1	----	31	5,910	−7.4	43	31	5,916	−7.3	57	30	5,893	−8.4	57	28	5,910	−6.2	----	29	5,817	−10.7	41	29	5,910	−8.1	61
450	31	6,714	−12.0	----	31	6,735	−12.4	37	29	6,739	−12.0	43	30	6,710	−13.3	46	27	6,736	−11.4	----	29	6,624	−16.0	42	29	6,733	−13.1	50
400	31	7,598	−18.1	----	31	7,614	−18.3	----	29	7,622	−17.7	39	30	7,590	−19.7	----	26	7,625	−17.1	----	28	7,499	−21.9	----	29	7,609	−18.8	43
350	31	8,582	−24.8	----	29	8,595	−25.5	----	28	8,607	−25.1	----	30	8,567	−26.8	----	25	8,611	−24.1	----	27	8,465	−29.0	----	29	8,590	−26.1	----
300	30	9,685	−32.9	----	29	9,693	−34.2	----	28	9,708	−33.6	----	30	9,661	−35.0	----	24	9,716	−32.4	----	25	9,542	−37.4	----	29	9,685	−34.8	----
250	29	10,941	−42.6	----	28	10,939	−44.3	----	28	10,961	−43.7	----	30	10,908	−44.2	----	20	10,978	−41.8	----	25	10,777	−46.3	----	29	10,930	−44.5	----
200	28	12,415	−52.3	----	27	12,396	−55.0	----	27	12,422	−55.0	----	29	12,376	−53.6	----	19	12,453	−52.2	----	25	12,230	−54.2	----	29	12,389	−54.6	----
175	27	13,264	−57.2	----	27	13,238	−60.5	----	26	13,263	−60.9	----	29	13,224	−58.7	----	18	13,313	−57.5	----	21	13,082	−55.4	----	28	13,236	−59.8	----
150	21	14,222	−60.9	----	22	14,193	−65.3	----	24	14,204	−66.3	----	28	14,180	−63.3	----	13	14,268	−62.8	----	15	14,066	−57.3	----	21	14,182	−63.6	----
125	8	15,313	−63.5	----	11	15,306	−70.0	----	12	15,297	−71.1	----	17	15,280	−64.9	----	8	15,366	−66.3	----	6	15,196	−59.8	----	11	15,303	−67.4	----
100	----	----	----	----	----	----	----	----	----	----	----	----	5	16,619	−64.4	----	----	----	----	----	----	----	----	----	5	16,628	−68.2	----

Standard pressure surface (mb.)	Great Falls, Mont. (887.8 mb.)				Greensboro, N. C. (986.4 mb.)				Hatteras, N. C. (1,017.2 mb.)				Havana, Cuba [1] (.... mb.)				Honolulu, T. H. [2] (.... mb.)				Huntington, W. Va. (997.0 mb.)				International Falls, Minn. (975.2 mb.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
Surface	31	1,128	21.7	47	31	273	22.2	81	31	3	23.9	89	----	----	----	----	----	----	----	----	30	172	20.0	93	28	343	18.6	74
1,000	31	77	(*)	----	31	154	(*)	----	31	153	23.1	86	----	----	----	----	----	----	----	----	30	144	(*)	----	28	130	(*)	----
950	31	537	(*)	----	31	602	21.7	75	31	602	20.7	80	----	----	----	----	----	----	----	----	30	596	21.6	70	28	576	19.5	62
900	31	1,011	(*)	----	31	1,069	18.9	77	31	1,067	18.4	70	----	----	----	----	----	----	----	----	30	1,060	18.5	71	28	1,038	16 1	66
850	31	1,505	20.1	40	31	1,559	15.9	78	31	1,555	15.8	69	----	----	----	----	----	----	----	----	30	1,548	15.3	73	28	1,521	12.5	72
800	31	2,024	16.5	41	31	2,073	12.9	75	31	2,068	13.1	63	----	----	----	----	----	----	----	----	30	2,060	12.4	65	28	2,028	9.4	67
750	31	2,575	12.5	43	31	2,614	10.0	68	31	2,611	10.5	60	----	----	----	----	----	----	----	----	30	2,603	9.8	57	28	2,568	7.0	51
700	31	3,144	7.9	49	31	3,184	6.9	65	30	3,180	7.7	56	----	----	----	----	----	----	----	----	30	3,169	6.7	55	28	3,126	4.4	37
650	31	3,751	3.0	54	31	3,793	3.8	58	29	3,790	4.1	55	----	----	----	----	----	----	----	----	28	3,775	3.1	54	28	3,725	1.0	35
600	31	4,394	−1.4	53	31	4,437	0.1	54	28	4,435	0.5	55	----	----	----	----	----	----	----	----	28	4,419	−0.4	50	28	4,365	−2.7	----
550	31	5,079	−5.8	48	30	5,127	−4.2	50	28	5,129	−3.3	51	----	----	----	----	----	----	----	----	28	5,106	−4.4	46	28	5,048	−7.2	----
500	31	5,822	−10.7	46	30	5,876	−8.4	46	28	5,876	−7.8	46	----	----	----	----	----	----	----	----	28	5,855	−8.8	41	28	5,786	−12.0	----
450	31	6,632	−16.3	47	30	6,690	−13.5	46	28	6,700	−12.9	47	----	----	----	----	----	----	----	----	28	6,671	−12.8	----	28	6,590	−17.1	----
400	31	7,501	−22.5	----	30	7,573	−19.5	----	27	7,576	−18.7	49	----	----	----	----	----	----	----	----	28	7,549	−19.7	----	28	7,458	−22.9	----
350	31	8,468	−29.5	----	30	8,550	−26.8	----	27	8,557	−25.7	----	----	----	----	----	----	----	----	----	28	8,526	−26.8	----	27	8,420	−30.3	----
300	31	9,548	−38.0	----	29	9,646	−35.0	----	26	9,655	−33.9	----	----	----	----	----	----	----	----	----	28	9,620	−35.0	----	26	9,509	−38.0	----
250	30	10,781	−46.9	----	29	10,892	−45.0	----	23	10,902	−43.7	----	----	----	----	----	----	----	----	----	27	10,873	−44.2	----	26	10.741	−46.5	----
200	30	12,230	−55.1	----	28	12,352	−55.7	----	20	12,373	−53.9	----	----	----	----	----	----	----	----	----	26	12,339	−54.1	----	25	12,194	−53.1	----
175	28	13,080	−56.6	----	23	13,189	−60.2	----	17	13,214	−58.8	----	----	----	----	----	----	----	----	----	23	13,195	−58.9	----	23	13,052	−55.2	----
150	26	14,050	−58.2	----	19	14,145	−63.9	----	15	14,171	−62.9	----	----	----	----	----	----	----	----	----	16	14,162	−62.4	----	22	14,028	−57.2	----
125	20	15,197	−59.7	----	12	15,251	−66.4	----	10	15,278	−65.1	----	----	----	----	----	----	----	----	----	11	15,283	−66.4	----	19	15,170	−58.1	----
100	18	16,589	−59.8	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	10	16,369	−57.9	----
80	7	17,972	−59.5	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	6	17,988	−57.1	----

Standard pressure surface (mb.)	Joliet, Ill. (995.9 mb.)				Lake Charles, La. (1,014.7 mb.)				Lander, Wyo. (831.5 mb.)				Las Vegas, Nev. (944.3 mb.)				Little Rock, Ark. (1,005.9 mb.)				Mazatlan, Mexico (1,005.6 mb.)				Medford, Oreg. (967.7 mb.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
Surface	31	178	21.3	73	31	5	26.0	88	30	1,696	22.2	39	31	574	33.9	24	31	79	25.5	82	29	79	28.8	77	31	401	27.4	35
1,000	31	142	(*)	----	31	134	25.5	84	30	53	(*)	----	31	50	(*)	----	31	132	25.5	80	29	106	28.2	77	31	109	(*)	----
950	31	590	21.8	60	31	593	23.4	78	30	523	(*)	----	31	521	(*)	----	31	585	24.0	72	29	566	25.1	71	31	569	25.9	37
900	31	1,057	19.1	63	31	1,058	20.6	74	30	1,004	(*)	----	31	1,005	31.0	24	31	1,056	21.0	72	29	1,035	22.9	65	31	1,036	21.7	42
850	31	1,546	15.6	69	31	1,551	17.9	70	30	1,504	(*)	----	31	1,512	26.6	26	31	1,549	17.8	72	29	1,531	20.1	64	31	1,527	17.3	47
800	31	2,059	12.7	61	31	2,068	14.9	64	30	2,032	21.9	33	31	2,042	22.0	30	31	2,066	14.5	69	29	2,053	17.1	62	31	2,041	13.1	52
750	31	2,601	9.8	58	31	2,621	11.8	62	30	2,589	17.4	36	31	2,597	17.0	35	31	2,610	11.2	63	29	2,605	14.1	60	31	2,586	9.6	50
700	31	3,169	6.4	59	31	3,188	8.5	60	30	3,172	12.6	41	31	3,180	11.8	42	30	3,176	7.8	52	29	3,181	10.4	63	31	3,150	6.5	41
650	30	3,776	3.1	54	31	3,804	5.0	55	30	3,791	7.5	48	31	3,797	6.6	46	29	3,897	4.9	43	29	3,799	6.1	66	31	3,756	2.6	40
600	30	4,419	−0.5	53	31	4,446	1.2	55	30	4,443	2.2	57	31	4,446	1.6	48	28	4,440	1.5	40	28	4,458	1.8	69	31	4,396	−1.4	36
550	30	5,110	−4.4	47	31	5,148	−2.6	52	30	5,138	−3.2	63	31	5,142	−2.9	47	28	5,136	−2.7	----	28	5,145	−2.8	71	31	5,085	−5.9	40
500	30	5,856	−8.4	----	31	5,891	−7.0	54	30	5,888	−8.5	57	31	5,890	−7.9	45	28	5,886	−7.1	----	27	5,894	−7.2	70	31	5,823	−10.9	39
450	30	6,669	−13.6	----	30	6,717	−12.1	52	30	6,704	−13.9	50	31	6,708	−13.6	----	28	6,708	−12.5	----	27	6,713	−12.2	64	31	6,630	−16.6	44
400	29	7,549	−19.9	----	30	7,597	−17.8	50	30	7,581	−20.0	46	31	7,586	−19.8	----	28	7,589	−18.2	----	27	7,602	−17.8	59	31	7,499	−22.8	----
350	29	8,526	−27.2	----	30	8,582	−24.5	----	30	8,556	−27.5	----	31	8,564	−27.1	----	28	8,573	−24.9	----	24	8,586	−24.8	----	31	8,463	−30.2	----
300	29	9,617	−35.4	----	30	9,684	−33.1	----	30	9,646	−36.2	----	31	9,657	−35.2	----	26	9,677	−33.0	----	24	9,689	−33.2	----	30	9,543	−38.6	----
250	29	10,862	−44.5	----	30	10,938	−43.3	----	30	10,885	−46.1	----	31	10,901	−44.8	----	25	10,930	−42.6	----	24	10,943	−43.5	----	29	10,764	−47.7	----
200	29	12,325	−53.9	----	30	12,402	−55.2	----	30	12,338	−55.5	----	30	12,357	−54.7	----	24	12,399	−53.8	----	22	12,403	−55.5	----	29	12,209	−54.7	----
175	29	13,174	−57.9	----	30	13,242	−61.3	----	30	13,180	−59.7	----	26	13,190	−59.5	----	21	13,246	−59.1	----	18	13,242	−61.5	----	29	13,058	−57.3	----
150	28	14,134	−61.0	----	28	14,187	−66.0	----	27	14,134	−62.5	----	15	14,143	−62.8	----	19	14,197	−64.3	----	6	14,207	−66.7	----	28	14,023	−59.2	----
125	24	15,265	−63.7	----	16	15,285	−69.0	----	19	15,244	−63.9	----	8	15,247	−65.6	----	11	15,294	−68.0	----	----	----	----	----	23	15,157	−60.0	----
100	17	16,612	−64.8	----	----	----	----	----	9	16,598	−63.4	----	----	----	----	----	----	----	----	----	----	----	----	----	12	16,552	−61.5	----
80	16	17,976	−62.2	----	----	----	----	----	6	17,978	−62.7	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

See footnotes at end of table.

TABLE 1.—*Mean dynamic height (geopotential) in units of 0.98 dynamic meter, temperature in degrees centigrade, and relative humidity in percent, for standard pressures, as obtained by radiosondes during July 1946*—Continued

Standard pressure surface (mb.)	Merida, Mexico (1,011.3 mb.)				Miami, Fla. (1,018.8 mb.)				Nantucket, Mass. (1,016.0 mb.)				Nashville, Tenn. (997.3 mb.)				North Platte, Nebr. (916.8 mb.)				Oakland, Calif. (1,016.6 mb.)				Ogden, Utah (862.3 mb.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
Surface	31	27	27.5	74	31	4	24.7	88	31	14	16.8	95	30	180	24.7	77	31	849	23.8	63	31	2	17.7	73	31	1,355	26.1	34
1,000	31	136	26.5	75	31	160	25.3	81	31	156	18.3	84	30	139	(*)	----	31	97	(*)	----	31	127	16.4	75	31	45	(*)	----
950	31	587	24.3	71	31	611	22.4	80	31	599	18.6	65	30	590	23.4	70	31	557	(*)	----	31	575	17.4	60	31	515	(*)	----
900	31	1,062	21.3	70	31	1,080	19.5	78	31	1,060	16.7	57	30	1,060	20.6	72	31	1,029	24.8	53	31	1,028	20.9	33	31	999	(*)	----
850	31	1,556	17.9	73	31	1,571	16.6	73	31	1,545	14.0	58	30	1,552	17.3	76	31	1,529	21.8	52	31	1,521	20.1	27	31	1,503	26.6	29
800	31	2,072	14.3	72	31	2,086	13.7	70	31	2,054	11.5	50	30	2,068	14.3	71	31	2,053	18.6	53	31	2,040	17.3	26	31	2,034	22.6	29
750	31	2,616	11.3	65	31	2,631	10.6	64	31	2,597	8.9	44	30	2,614	11.2	69	31	2,606	14.9	53	31	2,591	14.3	23	31	2,593	17.9	33
700	31	3,189	8.0	57	31	3,200	7.4	60	31	3,159	6.2	38	30	3,185	8.1	61	31	3,184	10.8	54	31	3,165	10.7	25	31	3,176	12.9	37
650	31	3,800	4.7	55	30	3,811	3.9	57	30	3,766	3.0	36	30	3,796	4.7	59	31	3,800	6.5	49	31	3,779	6.9	26	31	3,795	7.9	41
600	31	4,446	1.1	53	30	4,454	0.4	56	28	4,406	−0.8	31	30	4,442	1.2	55	31	4,449	2.0	44	31	4,431	2.5	27	31	4,447	2.5	49
550	30	5,141	−3.2	51	30	5,150	−3.6	57	27	5,095	−4.8	----	30	5,137	−2.6	47	31	5,149	−3.0	50	30	5,126	−2.2	----	31	5,140	−3.2	54
500	30	5,889	−8.1	51	30	5,895	−8.1	58	27	5,837	−9.5	----	30	5,887	−7.1	42	30	5,893	−8.0	46	30	5,876	−7.3	----	31	5,890	−8.7	51
450	30	6,710	−13.1	55	30	6,712	−13.1	56	26	6,649	−15.0	----	30	6,711	−12.2	42	30	6,716	−13.2	42	30	6,692	−13.1	----	31	6,704	−14.2	45
400	29	7,589	−18.9	56	29	7,596	−18.8	55	25	7,520	−21.3	----	30	7,594	−17.9	44	30	7,593	−19.0	----	28	7,577	−19.6	----	31	7,581	−20.4	45
350	29	8,570	−26.0	----	26	8,577	−26.0	----	25	8,490	−28.8	----	29	8,579	−24.7	----	30	8,573	−25.8	----	27	8,553	−27.2	----	31	8,555	−27.5	----
300	29	9,666	−34.6	----	26	9,674	−34.5	----	25	9,574	−37.3	----	29	9,682	−32.8	----	30	9,672	−33.8	----	27	9,645	−35.5	----	31	9,645	−35.9	----
250	29	10,913	−44.9	----	25	10,922	−44.7	----	24	10,807	−47.2	----	29	10,940	−42.4	----	29	10,926	−43.7	----	26	10,895	−43.7	----	29	10,889	−45.3	----
200	27	12,365	−56.6	----	23	12,378	−56.6	----	24	12,250	−56.1	----	28	12,420	−52.9	----	28	12,393	−54.0	----	24	12,374	−51.7	----	29	12,344	−54.8	----
175	21	13,205	−62.6	----	19	13,216	−63.1	----	24	13,092	−59.3	----	24	13,267	−58.4	----	28	13,239	−59.0	----	22	13,229	−55.7	----	29	13,189	−59.0	----
150	11	14,134	−69.3	----	17	14,143	−69.8	----	23	14,052	−60.4	----	18	14,234	−62.0	----	24	14,202	−63.1	----	17	14,207	−59.4	----	24	14,152	−62.4	----
125	----	----	----	----	6	15,228	−71.7	----	19	15,182	−61.7	----	10	15,360	−65.3	----	12	15,317	−66.3	----	6	15,335	−61.5	----	16	15,272	−64.3	----
100	----	----	----	----	----	----	----	----	13	16,561	−61.7	----	----	----	----	----	----	----	----	----	----	----	----	----	8	16,633	−65.0	----
80	----	----	----	----	----	----	----	----	10	17,960	−59.8	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

	Oklahoma City, Okla. (968.9 mb.)				Omaha, Nebr. (979.3 mb.)				Phoenix, Ariz. (969.7 mb.)				Pittsburgh, Pa. (973.6 mb.)				Portland, Maine (1,014.7 mb.)				Rapid City, S. Dak. (904.7 mb.)				St. Paul, Minn. (989.5 mb.)			
Surface	31	391	27.5	60	30	308	25.2	69	31	339	33.9	36	30	382	22.0	66	31	20	16.2	84	31	981	21.7	68	31	225	22.8	70
1,000	31	108	(*)	----	30	123	(*)	----	31	59	(*)	----	30	146	(*)	----	31	144	18.3	76	31	97	(*)	----	31	132	(*)	----
950	31	569	28.6	54	30	579	23.8	63	31	526	34.7	31	30	600	21.3	63	31	588	17.9	67	31	556	(*)	----	31	585	21.0	64
900	31	1,045	25.1	51	30	1,046	21.5	60	31	1,012	30.8	33	30	1,062	18.4	62	31	1,047	15.6	68	31	1,026	22.3	62	31	1,046	17.6	67
850	31	1,544	21.6	51	30	1,540	18.7	59	31	1,520	26.4	36	30	1,549	15.0	65	31	1,530	12.7	69	31	1,524	20.9	52	31	1,532	14.5	65
800	31	2,067	18.1	47	30	2,059	16.1	53	31	2,051	21.8	41	30	2,059	11.5	62	31	2,036	9.6	68	31	2,045	17.1	54	31	2,043	11.8	59
750	31	2,620	14.2	47	30	2,609	12.9	50	31	2,608	17.0	46	30	2,605	9.3	50	31	2,575	6.9	55	31	2,595	18.7	53	31	2,585	8.9	53
700	31	3,196	10.2	41	30	3,182	9.5	53	31	3,190	12.0	52	30	3,166	6.4	48	31	3,134	4.3	49	31	3,170	9.6	52	31	3,149	5.8	47
650	31	3,814	6.3	37	30	3,796	5.7	52	31	3,810	7.2	55	30	3,776	2.9	49	31	3,736	1.3	45	31	3,784	4.9	54	30	3,756	2.4	46
600	30	4,461	2.4	37	30	4,444	1.4	46	31	4,459	2.5	57	29	4,415	−0.6	45	31	4,375	−2.1	41	31	4,428	0.6	49	30	4,396	−1.4	43
550	30	5,162	−1.9	38	30	5,139	−2.8	44	31	5,159	−2.4	56	29	5,106	−4.5	40	31	5,061	−6.2	----	30	5,122	−4.1	44	30	5,082	−5.4	40
500	30	5,910	−6.5	35	29	5,890	−7.4	38	31	5,908	−7.0	53	29	5,850	−8.6	----	31	5,801	−10.7	----	30	5,865	−9.0	40	30	5,826	−9.9	39
450	30	6,739	−11.7	32	29	6,713	−12.8	----	31	6,732	−11.8	48	29	6,669	−14.1	----	31	6,611	−16.1	----	30	6,680	−14.5	----	30	6,637	−15.3	40
400	30	7,620	−17.6	----	29	7,592	−18.9	----	31	7,616	−17.9	50	28	7,542	−20.4	----	31	7,480	−22.3	----	29	7,555	−20.6	----	30	7,512	−21.6	----
350	30	8,605	−24.8	----	29	8,574	−25.4	----	31	8,600	−25.2	----	28	8,517	−27.3	----	31	8,447	−29.5	----	29	8,529	−27.5	----	30	8,482	−28.6	----
300	30	9,708	−33.4	----	28	9,680	−33.5	----	31	9,700	−34.0	----	28	9,610	−35.1	----	31	9,528	−37.7	----	28	9,620	−35.8	----	30	9,568	−36.7	----
250	30	10,962	−43.0	----	28	10,934	−43.0	----	29	10,951	−43.9	----	28	10,856	−44.4	----	29	10,762	−47.3	----	28	10,863	−44.6	----	29	10,805	−45.7	----
200	30	12,432	−53.6	----	27	12,402	−53.3	----	29	12,414	−54.8	----	28	12,317	−54.2	----	27	12,208	−56.2	----	27	12,328	−53.5	----	28	12,265	−53.7	----
175	30	13,279	−59.0	----	27	13,252	−58.0	----	28	13,256	−60.5	----	26	13,163	−58.5	----	25	13,054	−59.1	----	24	13,180	−57.9	----	28	13,116	−56.9	----
150	25	14,231	−63.8	----	25	14,215	−59.9	----	24	14,202	−65.7	----	21	14,124	−61.1	----	24	14,017	−60.1	----	21	14,142	−61.5	----	25	14,091	−59.9	----
125	19	15,326	−67.7	----	19	15,317	−65.6	----	14	15,297	−69.6	----	17	15,242	−62.4	----	17	15,132	−60.2	----	14	15,271	−62.9	----	23	15,232	−62.2	----
100	10	16,649	−68.2	----	7	16,646	−66.1	----	6	16,602	−71.6	----	7	16,584	−61.6	----	9	16,525	−59.3	----	----	----	----	----	15	16,581	−62.0	----
80	----	----	----	----	----	----	----	----	----	----	----	----	5	17,947	−59.8	----	----	----	----	----	----	----	----	----	5	17,983	−58.7	----

	San Antonio, Tex. (986.2 mb.)				San Juan, P. R. (1,017.2 mb.)				Santa Maria, Calif. (1,006.3 mb.)				Sault Ste. Marie, Mich. (991.0 mb.)				Spokane, Wash. (944.4 mb.)				Swan Island, W. I.[1] (... ... mb.)				Tacubaya, Mexico (775.4 mb.)			
Surface	31	240	28.5	61	28	15	26.3	80	31	71	15.6	81	31	221	14.7	85	31	598	25.7	32	----	----	----	----	31	2,306	16.1	69
1,000	31	116	(*)	----	28	166	25.1	81	31	124	14.4	82	31	143	(*)	----	31	91	(*)	----	----	----	----	----	31	77	(*)	----
950	31	576	26.7	60	28	619	21.5	83	31	573	17.9	65	31	585	17.2	68	31	547	(*)	----	----	----	----	----	31	540	(*)	----
900	31	1,049	23.7	62	28	1,083	18.3	81	31	1,027	22.4	33	31	1,042	15.0	68	31	1,019	22.4	34	----	----	----	----	31	1,015	(*)	----
850	31	1,546	20.3	65	28	1,572	15.5	73	31	1,523	20.9	32	31	1,524	11.8	70	31	1,512	17.9	39	----	----	----	----	31	1,511	(*)	----
800	31	2,067	16.8	63	28	2,085	13.6	57	31	2,044	17.5	34	31	2,029	8.9	64	31	2,026	13.1	45	----	----	----	----	31	2,044	(*)	----
750	31	2,616	13.5	52	28	2,629	10.9	49	31	2,593	13.7	34	31	2,568	6.3	54	31	2,569	8.6	47	----	----	----	----	31	2,591	13.8	79
700	31	3,193	10.0	49	28	3,199	7.5	46	31	3,169	10.0	34	31	3,124	3.5	51	31	3,130	4.7	41	----	----	----	----	31	3,167	9.4	74
650	31	3,806	6.3	43	28	3,808	3.9	40	31	3,781	6.0	33	30	3,726	0.7	44	31	3,734	1.2	33	----	----	----	----	31	3,783	5.0	80
600	31	4,470	2.6	39	26	4,453	0.1	35	31	4,430	2.0	----	30	4,361	−2.8	41	31	4,369	−2.8	36	----	----	----	----	29	4,428	0.5	85
550	31	5,159	−1.6	34	26	5,149	−3.8	----	31	5,125	−2.6	----	30	5,048	−7.1	----	31	5,053	−7.0	35	----	----	----	----	29	5,126	−3.9	84
500	29	5,909	−6.0	28	26	5,891	−7.7	----	30	5,874	−7.8	----	30	5,783	−11.5	----	31	5,789	−12.1	41	----	----	----	----	29	5,870	−7.7	69
450	29	6,732	−11.5	----	25	6,710	−12.9	----	30	6,692	−13.7	----	30	6,588	−16.8	----	31	6,590	−17.7	39	----	----	----	----	29	6,692	−12.3	56
400	29	7,619	−17.4	----	25	7,592	−19.0	----	29	7,570	−20.2	----	30	7,457	−23.0	----	31	7,456	−24.3	----	----	----	----	----	29	7,575	−17.9	53
350	29	8,604	−24.5	----	24	8,570	−26.8	----	28	8,543	−27.6	----	29	8,422	−29.9	----	30	8,412	−31.9	----	----	----	----	----	29	8,559	−25.2	----
300	29	9,708	−33.0	----	23	9,663	−35.2	----	28	9,632	−35.9	----	29	9,501	−38.1	----	27	9,491	−40.0	----	----	----	----	----	29	9,658	−33.8	----
250	28	10,966	−42.4	----	23	10,908	−44.7	----	28	10,876	−44.2	----	28	10,734	−46.6	----	27	10,711	−48.6	----	----	----	----	----	28	10,911	−43.9	----
200	28	12,438	−53.3	----	18	12,372	−53.8	----	27	12,339	−52.8	----	28	12,189	−53.2	----	25	12,152	−53.8	----	----	----	----	----	25	12,372	−55.9	----
175	28	13,286	−59.1	----	17	13,219	−58.4	----	27	13,191	−57.7	----	27	13,043	−55.6	----	23	13,015	−54.4	----	----	----	----	----	17	13,206	−62.4	----
150	21	14,241	−64.2	----	12	14,190	−62.6	----	22	14,142	−63.4	----	27	14,021	−57.1	----	18	13,986	−55.4	----	----	----	----	----	9	14,159	−68.5	----
125	9	15,354	−67.8	----	5	15,329	−65.8	----	14	15,235	−66.6	----	21	15,164	−58.2	----	13	15,142	−57.0	----	----	----	----	----	----	----	----	----
100	----	----	----	----	----	----	----	----	----	----	----	----	12	16,544	−56.9	----	6	16,543	−58.2	----	----	----	----	----	----	----	----	----
80	----	----	----	----	----	----	----	----	----	----	----	----	8	17,963	−57.9	----	----	----	----	----	----	----	----	----	----	----	----	----

See footnotes at end of table.

TABLE 1.—*Mean dynamic height (geopotential) in units of 0.98 dynamic meter, temperature in degrees centigrade, and relative humidity in percent, for standard pressures, as obtained by radiosondes during July 1946*—Continued

Standard pressure surface (mb.)	Tampa, Fla. (1,016.8 mb.)			Tatoosh Island, Wash. (1,015.3 mb.)				Toledo, Ohio (994.7 mb.)			Washington, D. C. (1,015.0 mb.)				
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
Surface	31	9	25.5	87	31	31	13.8	87	31	191	20.7	74	31	25	23.2	77
1,000	31	156	25.1	85	31	159	13.4	83	31	143	(*)	----	31	155	23.2	72
950	31	606	22.6	81	31	593	12.8	74	31	594	21.5	60	31	606	21.3	67
900	31	1,076	20.0	76	31	1,044	11.2	69	31	1,058	18.5	60	31	1,069	18.3	69
850	31	1,568	17.2	73	31	1,519	9.2	64	31	1,546	15.0	61	31	1,557	14.9	66
800	31	2,084	14.1	70	31	2,020	6.7	60	31	2,057	11.8	56	31	2,068	12.4	55
750	31	2,628	11.1	67	31	2,552	4.3	52	31	2,597	9.3	47	31	2,609	9.8	49
700	31	3,201	7.8	63	31	3,106	1.5	48	31	3,164	6.1	47	31	3,178	6.8	47
650	31	3,811	4.3	59	31	3,703	−1.6	44	31	3,767	2.8	44	31	3,787	3.4	43
600	31	4,456	0.6	62	31	4,332	−5.4	43	31	4,412	−0.5	38	31	4,429	0.0	41
550	31	5,149	−3.4	61	31	5,013	−9.2	38	31	5,102	−4.3	----	30	5,121	−4.0	----
500	31	5,898	−7.7	59	30	5,737	−13.9	41	31	5,848	−8.8	----	29	5,868	−8.5	----
450	31	6,718	−12.7	55	30	6,535	−19.2	----	30	6,665	−13.9	----	29	6,682	−13.7	----
400	31	7,600	−18.4	56	30	7,396	−25.5	----	30	7,541	−20.1	----	29	7,563	−20.0	----
350	31	8,582	−25.5	----	29	8,353	−32.6	----	30	8,517	−27.0	----	29	8,538	−27.5	----
300	30	9,679	−33.9	----	29	9,422	−40.4	----	30	9,609	−35.4	----	29	9,628	−35.9	----
250	30	10,929	−44.2	----	28	10,644	−47.9	----	30	10,853	−44.7	----	28	10,868	−45.5	----
200	28	12,386	−56.6	----	27	12,098	−50.5	----	29	12,312	−54.2	----	27	12,321	−55.4	----
175	28	13,216	−63.5	----	25	12,904	−51.0	----	29	13,161	−57.7	----	27	13,164	−59.2	----
150	23	14,150	−69.1	----	20	13,965	−51.5	----	28	14,122	−60.7	----	25	14,117	−62.6	----
125	16	15,240	−70.6	----	16	15,145	−52.1	----	23	15,235	−62.6	----	23	15,233	−64.2	----
100	----	----	----	----	10	16,595	−52.5	----	13	16,584	−62.9	----	15	16,600	−64.2	----
80	----	----	----	----	----	----	----	----	----	----	----	----	10	17,966	−62.7	----

[1] Data not yet received.
[2] Insufficient 0400 observations during July.
*Temperature and relative humidity data for this level are not available or are available only for certain days. See note entitled "Change in Summarization of Radiosonde Data," p. 6, in the January 1946 issue of the MONTHLY WEATHER REVIEW.

NOTE.—All observations scheduled between 0300 and 0500 G. C. T., except at Maratlan and Merida, where they are taken near 0200 G. C. T.
"Number of observations" refers to those of dynamic height only. (In a few cases temperature or humidity data may be missing for one or more standard pressure surfaces of some observations.) Relative humidity data are not published for standard pressure surfaces having a corresponding mean temperature below −20° C.
All relative humidity observations are obtained by electric hygrometer and have been adjusted to compensate for the values occurring below the operating range of the humidity element. For explanation of the adjustment see article entitled "Curve Method for Obtaining Monthly Means of Relative Humidity," p. 241, MONTHLY WEATHER REVIEW, December 1944.
None of the means included in these tables are based on less than 15 observations at the surface or 5 observations at a standard pressure level.

LATE REPORT FOR SWAN ISLAND, WEST INDIES

TABLE 1.—*Mean dynamic height (geopotential) in units of 0.98 dynamic meter, temperature in degrees centigrade, and relative humidity in percent, for standard pressures, as obtained by radiosondes during June 1946*

STATIONS AND MEAN SURFACE PRESSURES

Standard pressure surface (mb.)	Swan Island, W. I. (1,013.7 mb.)				Standard pressure surface (mb.)	Swan Island, W. I. (1,013.7 mb.)			
	Number of observations	Dynamic height	Temperature	Relative humidity		Number of observations	Dynamic height	Temperature	Relative humidity
Surface	30	10	26.9	82	500	27	5,878	−7.9	55
1,000	30	130	26.0	82	450	26	6,698	−12.4	45
950	30	587	22.6	82	400	26	7,578	−17.9	43
900	30	1,051	19.7	78	350	26	8,566	−25.0	----
850	30	1,543	17.1	70	300	26	9,667	−33.4	----
800	30	2,058	14.6	59	250	26	10,919	−43.5	----
750	30	2,605	11.8	54	200	26	12,380	−55.5	----
700	30	3,176	8.4	52	175	25	13,221	−62.2	----
650	30	3,786	4.8	53	150	20	14,165	−68.9	----
600	28	4,431	0.9	53	125	9	15,203	−74.3	----
550	28	5,127	−3.4	55					

TABLE 2.—*Free-air resultant winds based on pilot balloon observations made near 5 p. m., E. S. T. (2200 G. C. T.) during July 1946. Directions given in degrees from north (N=360°, E=90°, S=180°, W=270°). Velocities in meters per second*

Altitude (meters) m. s. l.	Abilene, Tex. (534 m.)			Albuquerque, N. Mex. (1,630 m.)			Atlanta, Ga. (299 m.)			Billings, Mont. (1,095 m.)			Bismarck, N. Dak. (512 m.)			Boise, Idaho (808 m.)			Brownsville, Tex. (7 m.)			Buffalo, N. Y. (220 m.)			Burlington, Vt. (100 m.)			Charleston, S. C. (16 m.)			Cincinnati, Ohio (150 m.)			Denver, Colo. (1,627 m.)			El Paso, Tex. (1,198 m.)		
	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity
Surface	31	132	2.8	31	201	1.9	31	187	0.6	30	102	1.4	31	210	1.7	31	312	4.8	31	142	7.3	31	260	2.6	19	238	0.6	29	180	1.5	23	44	0.8	31	18	1.4	31	131	1.8
500							31	153	0.5										31	147	9.5	31	267	3.5	19	208	1.7	29	189	2.7	23	350	0.6						
1,000	31	134	3.2				30	167	0.8				31	244	2.0	31	320	4.9	31	154	7.4	31	264	4.3	18	251	2.2	28	250	8.1	23	355	1.6						
1,500	31	130	2.9				29	176	0.9	30	109	1.4	31	235	3.2	31	320	3.3	31	160	5.3	30	270	5.2	16	277	6.7	26	284	2.3	28	330	2.1				31	138	2.9
2,000	27	130	2.8	31	204	2.0	27	232	0.4	30	161	1.4	31	241	3.5	31	313	1.2	28	148	3.6	30	271	5.9	16	282	8.3	22	285	2.8	20	350	2.0	31	30	1.5	31	135	2.9
2,500	27	128	2.5	31	191	2.1	25	256	1.0	30	208	2.3	31	258	4.3	31	225	2.0	28	142	3.1	24	275	6.4	15	286	9.6	20	292	3.6	16	331	2.3	31	27	1.1	31	128	2.8
3,000	24	101	1.8	31	171	1.7	24	273	1.3	30	239	4.0	31	282	6.0	31	223	4.2	27	130	2.3	20	290	6.9	14	290	10.1	18	292	3.4	15	318	3.2	31	44	0.7	31	119	2.7
4,000	22	27	1.4	30	133	0.9	22	239	1.4	30	258	6.5	28	283	9.1	31	228	7.8	24	136	1.4	16	289	8.3	12	291	11.1	16	324	1.6	11	297	4.6	29	298	2.2	29	100	2.5
5,000	20	358	2.9	26	192	0.9	14	265	1.1	27	259	12.0	25	283	11.9	28	228	10.3	22	214	0.4	15	295	8.0				11	310	1.2				23	276	4.9	25	115	2.0
6,000	17	26	3.6	24	165	0.9	12	303	3.0	25	266	13.8	22	283	13.9	28	230	10.8	22	99	0.6	12	294	11.8										23	271	6.1	20	151	1.5
8,000	14	350	2.0	21	169	1.0				19	254	18.1	20	272	17.6	25	230	13.6	20	115	0.9													13	265	8.5	18	140	2.0
10,000	11	330	1.0	18	199	4.0				12	256	19.9	12	274	17.8	17	231	14.0	18	129	1.5													11	253	9.9			
12,000																12	236	15.4	14	139	3.6																	
14,000																			10	93	5.6																	

Altitude (meters) m. s. l.	Ely, Nev. (1,910 m.)			Grand Junction, Colo. (1,475 m.)			Greensboro, N. C. (271 m.)			Havre, Mont. (767 m.)			Jacksonville, Fla. (16 m.)			Joliet, Ill. (178 m.)			Las Vegas, Nev. (573 m.)			Little Rock, Ark. (88 m.)			Medford, Oreg. (416 m.)			Miami, Fla. (12 m.)			Mobile, Ala. (66 m.)			Nashville, Tenn. (194 m.)			New York, N. Y. (15 m.)		
	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity
Surface	31	198	4.7	31	272	3.0	29	85	0.5	30	283	1.3	30	124	1.3	31	174	0.7	31	207	2.9	30	119	1.3	31	318	2.7	31	150	2.8	29	234	1.2	31	39	0.4	30	163	3.6
500							29	91	0.9				30	206	2.0	31	131	0.3				30	120	1.2	31	314	2.8	31	165	4.2	29	224	2.4	31	6	0.3	30	204	3.1
1,000							29	123	0.6	30	260	1.9	29	231	3.1	31	278	0.5	31	203	4.5	30	67	0.6	31	305	3.0	31	177	3.2	26	253	2.9	30	314	0.9	27	266	3.3
1,500				31	274	2.9	28	33	0.1	30	261	1.8	26	233	4.8	31	285	1.3	31	189	4.8	29	17	1.4	30	308	1.3	31	193	2.3	25	271	3.3	30	1	0.8	26	281	3.5
2,000	31	200	4.6	31	279	2.9	27	320	1.6	30	248	3.2	26	244	4.1	30	291	2.7	31	183	5.2	28	17	2.6	30	247	1.2	30	201	1.4	21	274	4.6	28	20	0.7	24	295	3.4
2,500	31	204	4.9	31	288	2.2	24	322	3.1	29	244	4.7	23	257	4.2	28	304	3.9	31	185	5.0	23	359	2.9	28	212	2.6	28	205	1.3	19	279	3.8	25	2	0.7	24	293	4.4
3,000	31	209	4.6	31	259	2.2	23	308	3.8	26	249	6.8	21	258	3.5	26	302	5.1	31	187	5.0	20	18	3.3	28	213	4.0	28	210	1.4	14	289	3.0	25	342	1.1	21	293	5.1
4,000	29	207	4.8	31	239	3.4	20	313	4.1	21	258	10.3	17	240	4.0	22	297	6.0	29	203	4.8	14	5	2.2	27	223	6.9	25	159	1.8				17	336	1.2	13	293	6.8
5,000	21	221	6.0	31	232	4.3	16	321	3.7	17	262	12.3	16	232	3.1	19	302	7.0	26	213	5.7	10	35	2.0	24	224	7.6	21	169	2.4				14	327	2.9	11	307	8.2
6,000	17	215	5.7	28	223	4.9	14	325	4.4	12	258	17.3	11	246	4.1	15	301	9.2	23	206	6.1				22	226	9.6	17	174	2.5				12	319	3.3			
8,000	10	222	6.5	19	232	6.5													22	220	7.4				21	230	12.9	11	144	3.4				10	318	5.2			
10,000				12	235	7.7													19	218	14.2				13	240	14.9												
12,000																			13	217	14.5				10	246	17.2												
14,000																																							

Altitude (meters) m. s. l.	Oakland, Calif. (8 m.)			Oklahoma City, Okla. (396 m.)			Omaha, Nebr. (306 m.)			Phoenix, Ariz. (338 m.)			Rapid City, S. Dak. (982 m.)			St. Louis, Mo. (181 m.)			St. Paul, Minn. (225 m.)			San Antonio, Tex. (240 m.)			San Diego, Calif. (15 m.)			Sault Ste. Marie, Mich. (225 m.)			Seattle, Wash. (116 m.)			Spokane, Wash. (603 m.)			Washington, D. C. (24 m.)		
	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity
Surface	31	262	5.4	31	160	3.4	31	145	2.2	31	263	1.9	31	95	0.3	31	87	1.1	30	214	1.3	31	123	3.4	30	254	3.7	31	281	3.6	31	245	1.6	31	244	1.8	28	147	2.5
500	31	279	4.8	31	164	3.7	31	153	2.6	31	269	3.4				31	75	1.7	30	223	1.8	31	132	3.9	30	283	2.2	31	289	4.2	31	245	1.9				28	151	1.6
1,000	29	280	3.0	31	169	3.9	30	159	2.5	31	266	3.9	31	76	0.2	30	69	1.3	29	224	2.6	31	144	3.5	28	284	1.6	30	297	5.8	30	230	1.8	31	234	2.9	27	193	0.8
1,500	28	278	3.0	31	168	3.9	27	207	2.0	31	258	2.9	31	35	0.2	30	319	0.4	28	237	3.5	31	125	2.5	28	222	0.6	29	287	6.5	28	216	2.0	31	228	3.3	26	287	1.1
2,000	28	267	2.6	29	186	3.3	27	234	2.7	31	248	2.1	31	58	0.2	30	294	2.7	28	244	4.1	29	116	2.8	27	206	0.8	28	284	7.8	26	218	2.5	31	229	3.2	25	308	2.3
2,500	28	240	2.5	29	203	1.0	26	268	3.5	31	193	2.0	30	273	1.3	29	300	3.9	20	276	4.9	29	119	2.1	26	192	2.4	26	293	9.7	23	229	3.2	31	226	4.3	24	306	2.4
3,000	28	239	3.0	28	337	1.0	25	274	5.0	31	178	3.0	28	272	4.2	26	305	4.7	19	286	6.0	28	116	1.2	23	188	3.0	25	294	10.9	19	253	3.8	28	240	6.9	24	301	3.2
4,000	27	224	4.0	24	345	3.0	24	284	7.9	30	176	4.0	25	276	8.5	24	310	6.4	17	290	8.2	24	16	0.7	19	203	3.2	21	286	10.7	16	230	5.7	26	235	10.1	19	298	5.2
5,000	27	217	4.8	22	350	3.8	18	303	8.1	29	171	5.3	19	280	10.6	23	319	7.3	15	302	10.9	22	23	1.9	19	206	3.0	13	285	10.9	16	245	10.7	23	246	11.9	18	299	6.6
6,000	27	220	6.2	18	354	4.2	17	302	9.4	26	175	4.6	14	286	12.5	21	325	8.7	10	311	12.6	18	54	1.6	17	212	3.3				14	251	10.4	20	246	13.5	18	297	7.1
8,000	26	234	8.7	12	15	4.3	14	286	10.8	22	180	5.2				14	331	9.3							10	236	6.9				13	238	11.7	17	242	16.7	13	292	9.0
10,000	23	231	10.2				12	276	14.2	18	193	6.5				10	298	7.0													10	242	17.8						
12,000	20	233	14.1							14	200	6.1																										
14,000	12	224	19.7							11	169	4.3																										

TABLE 3.—*Maximum free-air wind velocities (m. p. s.) for different sections of the United States based on pilot balloon observations during July 1946*

Section	Surface to 2,500 meters (m. s. l.)					2,501 to 5,000 meters (m. s. l.)					Above 5,000 meters (m. s. l.)				
	Maximum velocity	Direction	Altitude (m.) m. s. l.	Date	Station	Maximum velocity	Direction	Altitude (m.) m. s. l.	Date	Station	Maximum velocity	Direction	Altitude (m.) m. s. l.	Date	Station
Northeast [1]	28.8	WSW.	1,017	2	Portland, Maine	33.8	SW.	3,812	26	Caribou, Maine	90.2	WSW.	14,232	21	Caribou, Maine.
East-Central [2]	24.4	S.	612	22	Hatteras, N. C.	28.5	SSW.	3,050	23	Hatteras, N. C.	60.0	W.	13,280	31	Hatteras, N. C.
Southeast [3]	22.6	WSW.	2,500	31	Charleston, S. C.	23.5	WSW.	2,756	31	Charleston, S. C.	35.6	ENE.	12,779	19	Atlanta, Ga.
North-Central [4]	38.3	NNW.	1,788	11	Duluth, Minn.	33.0	WNW.	2,965	24	Sault Ste. Marie, Mich.	61.7	WNW.	11,522	2	Marquette, Mich.
Central [5]	28.6	SW.	1,214	23	Dodge City, Kans.	30.0	W.	4,300	25	Indianapolis, Ind.	60.0	WNW.	14,336	26	Columbia, Mo.
	26.2	S.	1,429	11	Laredo, Tex.										
South-Central [6]	26.2	SSW.	1,903	13	Amarillo, Tex.	25.0	SSW.	2,501	13	Amarillo, Tex.	47.0	ENE.	10,864	29	Waco, Tex.
Northwest [7]	29.8	WNW.	945	2	Ellensburg, Wash.	35.3	SSW.	5,000	11	Tatoosh Island, Wash.	24.0	WSW.	12,883	22	Tatoosh Island, Wash.
West-Central [8]	31.8	SW.	2,219	8	Elko, Nev.	41.3	WSW.	4,667	9	Cheyenne, Wyo.	52.8	SW.	13,388	17	Sheridan, Wyo.
Southwest [9]	27.8	ESE.	1,720	1	Roswell, N. Mex.	44.1	SW.	3,204	8	Winslow, Ariz.	43.5	SSE.	13,837	17	Raton, N. Mex.

[1] Maine, Vermont, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, and northern Ohio.
[2] Delaware, Maryland, Virginia, West Virginia, southern Ohio, Kentucky, eastern Tennessee, and North Carolina.
[3] South Carolina, Georgia, Florida, and Alabama.
[4] Michigan, Wisconsin, Minnesota, North Dakota, and South Dakota.
[5] Indiana, Illinois, Iowa, Nebraska, Kansas, and Missouri.
[6] Mississippi, Arkansas, Louisiana, Oklahoma, Texas (except El Paso), and western Tennessee.
[7] Montana, Idaho, Washington, and Oregon.
[8] Wyoming, Colorado, Utah, northern Nevada, and northern California.
[9] Southern California, southern Nevada, Arizona, New Mexico, and extreme west Texas.

RIVER STAGES AND FLOODS FOR JULY 1946

C. R. JORDAN

Precipitation during July was very spotty. Most of the central and northern parts of the country were dry, but rainfall averaged above normal along the Atlantic Seaboard, in the Gulf States, in the Southwest, in western Washington, western Montana, and the western parts of the Dakotas.

There was no general flooding during the month, but numerous flash floods occurred at scattered points throughout the country and caused heavy local damage. Streams continued high in the Gulf States for the third consecutive month, but rainfall was well distributed throughout the month and no serious flooding resulted. There was some slight improvement in the drought area of the Southwest.

A severe local flood occurred in the vicinity of Wilkes-Barre, Pa., on July 31, 1946. Plymouth was hardest hit of the towns of the area. The Airway Communication Station at Forty Fort received 7.57 inches of rain in approximately 8 hours. Natural and artificial drainage facilities could not accommodate this torrential rainfall; sections of Plymouth and Kingston experienced heavy damage from water and silt. In Plymouth it was estimated that more damage was suffered than from any Susquehanna River flood in history. The stage of the main stream at Wilkes-Barre rose only from 2.4 to 5.2 feet as a result of the rainfall.

On July 30, 1946, extremely heavy rainfall occurred over a relatively limited area in the vicinity of Carthage, Walnut Grove, and Kosciusko, Miss.; over 7.5 inches of rain were estimated to have fallen at Carthage. Reports indicate that the heavy downpour produced a local flash flood of considerable duration during the night of July 30–31, confined to an area on a minor tributary of the Pearl River flowing through Carthage, Miss.

Rainfall of about 8 inches on July 16–17 over headwater tributaries of the Fox and Chariton Rivers in Iowa produced flash floods on these small streams causing considerable damage to highways, railroads, and small communities. Five lives were reported lost, four of which were due to a bridge washout over an unnamed creek west of Albia.

Cloudbursts in the headwaters of Mount Pleasant Creek in Utah on July 24, caused the most disastrous flood in the history of Mount Pleasant. No lives were lost but considerable damage was suffered locally.

Heavy rains in northeastern Montana from July 5 to 10, resulted in local damage to bridges, roads, and crops. There was an unofficial report of 9 inches of rain within 8 hours at one point. The United States Geological Survey reported that the Poplar River at Bredette, Mont., reached the highest stage in 12 years of record.

Another flash flood was reported on July 18 on Cherry Creek near Melvin, Colo. Hail to a depth of 12 inches was reported from the center of the storm area.

Flood stages were reported at scattered stations throughout the country, as shown in the following table.

FLOOD STAGE REPORT FOR JULY 1946

[All dates in July unless otherwise specified]

River and station	Flood stage	Above flood stages—dates		Crest[1]	
		From—	To—	Stage	Date
ATLANTIC SLOPE DRAINAGE	*Feet*			*Feet*	
Roanoke: Williamston, N. C.	10	14	15	10.2	15
Neuse:					
Neuse, N. C.	14	12	13	14.7	13
Smithfield, N. C.	13	4	5	14.4	5
Cape Fear: Lock No. 2, Elizabethtown, N. C.	20	12	12	20.0	12
EAST GULF OF MEXICO DRAINAGE					
Tombigbee: Lock No. 3, Ala.	33	8	11	34.3	9
		11	15	35.0	13
Pearl: Pearl River, La.	12	10	15	12.5	12
		26	26	12.2	26
MISSISSIPPI SYSTEM					
Upper Mississippi Basin					
Middle: Indianola, Iowa	14	18	20	17.3	19
Des Moines:					
Eddyville, Iowa	15	17	17	17.6	17
Ottumwa, Iowa	9	17	18	12.5	17
Fox: Wayland, Mo.	15	18	20	18.4	19
Illinois:					
Havana, Ill.	14	June 20	1	15.6	June 23-24
Beardstown, Ill.	14	June 21	4	16.7	June 25
Mississippi:					
Fort Ripley, Minn.	10	June 29	7	10.8	June 30
Hannibal, Mo.	13	18	20	13.7	20
Louisiana, Mo.	12	June 30	15	12.2	4-10
		18	20	12.6	20
Missouri Basin					
Solomon: Beloit, Kans.	18	7	8	18.0	7-8
		16	18	21.0	17-18
Republican:					
Culbertson, Nebr.	6.5	3	3	7.1	3
Guide Rock, Nebr.	10	7	7	10.5	7
Hardy, Nebr.	11	7	7	11.1	7
Scandia, Kans.	10	7	7	10.8	7
Concordia, Kans.	8	7	7	8.7	7
		16	16	8.5	16
Clay Center, Kans.	15	8	8	16.4	8
		17	18	18.8	17
Wakefield, Kans.	11	17	17	11.2	17
Little Blue: Hanover, Kans.	14	16	16	17.2	16
Big Blue:					
Barnston, Nebr.	18	16	16	19.2	16
Blue Rapids, Kans.	20	16	17	29.2	17
Randolph, Kans.	22	16	17	24.6	17
Kansas: Manhattan, Kans.	17	18	18	17.0	18
Grand: Chillicothe, Mo.	18	June 30	2	20.0	1
Lower Mississippi Basin					
Tallahatchie: Swan Lake, Miss.	26	11	15	26.6	13
WEST GULF OF MEXICO DRAINAGE					
Bayou Cannes: Eunice, La.	16	6	10	21.1	7
Mermentau: Mermentau, La.	5	6	16	8.6	10
Sabine: Bon Wier, Tex.	17	May 29	3	20.3	June 2-3
				18.4	June 10
				19.8	June 28
Trinity: Liberty, Tex.	24	4	4	24.0	4
PACIFIC SLOPE DRAINAGE					
Columbia Basin					
Columbia: Vancouver, Wash.	15	May 9	----------	21.4	June 1

[1] Provisional.

MAY 1946 FLOOD IN SUSQUEHANNA RIVER BASIN

By C. R. JORDAN

The flood of May 1946 in the upper Susquehanna River Basin followed an unusually persistent rainy period that began in the early part of the month after the driest April in 58 years of record. Stages were the highest of record on the Pine, Lycoming, and Loyalsock Creeks (tributaries of the West Branch of the Susquehanna River), the Chemung and Tioga Rivers, and on the North Branch of the Susquehanna River from the mouth of the Chemung to a point just above Wilkes-Barre, Pa. Several lives were lost as a result of the flood, many persons were made homeless, and considerable property damage occurred.

Persistent heavy showers from May 5–22 over the upper Susquehanna River Basin gradually brought soil moisture and ground water conditions to a point favorable for heavy run-off. However, it was the heavy precipitation that began after noon of the 26th and continued for 30 hours or more, reaching cloudburst proportions at times, that caused the streams to rise above bank levels. Total rainfall from May 26–29 ranged from 4 to more than 7 inches at several stations in southern New York and northern Pennsylvania. Table I shows a tabulation of the rainfall at several stations in the basin during the period of the flood-producing rains.

Long-time record stages were exceeded at Towanda, Pa., on the Susquehanna; at Cedar Run, Pa., on Pine Creek; at Corning and Chemung, N. Y., on the Chemung; and at Erwins, N. Y., on Tioga River. At Elmira, N. Y., the peak stage of the Chemung River at Lake Street bridge was 1.7 feet above the previous maximum stage of record established in 1889. Table II gives a tabulation of flood stages and a comparison of the crests reached in this flood with the heights reached in previous floods.

Along the North Branch of the Susquehanna above the mouth of the Chemung, flood crests were well below record heights. Below, at Towanda, Pa., however, the crest of 25.08 feet exceeded the flood crest of March 1936, by 0.05 foot. The crest at Wilkes-Barre, Pa., was about a foot below that of the March 1936 flood. Rainfall was lighter south of the West Branch of the Susquehanna, and the flood crest was reduced considerably after it passed the mouth of the West Branch. The stages in the Juniata River remained generally well below flood, the river cresting at Newport, Pa., at 15.6 feet on May 28, compared to a crest of 34.2 feet in March 1936. At Harrisburg, the crest in the Susquehanna, 21.8 feet, was 8.5 feet below that of the 1936 flood.

Property damage in the flood amounted to millions of dollars. Soil erosion was exceedingly heavy, and numerous slides and washouts occurred in Bradford, Lycoming, and Tioga Counties in Pennsylvania, and in Chemung and portions of Steuben County in New York. At Lawrenceville, Pa., along the Tioga River, every home in the village was flooded. Practically all of the business section of Elmira, N. Y., and much of the residential area, was flooded by the Chemung River. Business and residential areas flooded comprised about 40 percent of the city's area. The water in the main business district rose to from 4 to 7 feet in depth. At Wilkes-Barre, Pa., where the flood was only a foot below the disastrous flood of 1936, the city escaped with comparatively little damage, owing to the erection of flood protective works since 1936. At Corning, N. Y., the flood was only 6 inches below the top of the flood protection dikes. At Harrisburg, Pa., and downstream, only light damage occurred.

TABLE 1.—*Daily precipitation May 26–29, 1946*

[Measured at 7 a. m.]

Station	May 26	May 27	May 28	May 29	Total
Covington, Pa.	0.10	1.47	3.44	0.10	5.11
Wellsboro, Pa.	.35	1.38	3.89	.10	5.72
Corning, N. Y.	.50	1.39	2.11	.13	4.13
Binghamton, N. Y.	.54	1.00	1.95	.31	3.80
Pleasant Mount, Pa.	.53	1.42	2.18	.29	4.42
Susquehanna, Pa.	.49	.71	1.64	.22	3.06
Towanda, Pa.	.51	1.08	3.73	.17	5.49
Tunkhannock, Pa.	.40	.86	2.90	.40	4.56
Dushore, Pa.	.69	.97	3.05	.25	4.96
Wilkes-Barre, Pa.	.91	.86	1.35	.31	3.43
Danville, Pa.	.97	.85	1.50	.22	3.54
Clearfield, Pa.	.51	2.02	1.22	.10	3.85
Karthaus, Pa.	.81	2.10	1.29	.10	4.30
Emporium, Pa.	.79	1.46	2.49	.07	4.81
Medix Run, Pa.	.90	1.49	1.78	.04	4.21
Driftwood, Pa.	.56	1.17	1.77	.03	3.53
Renova, Pa.	.38	2.16	4.70	.10	7.34
Carter Camp, Pa.	.52	1.01	3.30	.05	4.88
Lock Haven, Pa.	1.03	1.04	2.80	.10	4.97
Cedar Run, Pa.	.87	1.79	3.35	.03	6.04
English Center, Pa.	.52	1.06	4.33	.14	6.05
State College, Pa.	1.30	1.19	1.13	1.15	4.77
Bald Eagle, Pa.	.48	1.12	1.43	.12	3.15
Newport, Pa.	1.41	.79	1.22	.16	3.58
Laurelton, Pa.	.16	1.03	1.95	.20	3.34
Sunbury, Pa.	1.44	1.53	3.22	.22	6.41
Good Springs, Pa.	1.46	1.22	1.40	.09	4.17
Vestal, N. Y.	.55	1.00	1.63	.26	3.44
Bainbridge, N. Y.	.42	.90	1.65	.12	3.09
Oneonta, N. Y.	.34	1.19	1.47	.15	3.15
Rockdale, N. Y.	.36	.94	1.70	.20	3.20
Greene, N. Y.	.47	.92	1.72	.20	3.31
Whitney Point, N. Y.	.29	1.16	1.85	.26	3.56
Spencer, N. Y.	.48	1.54	2.02	.18	4.22
Chemung, N. Y.	.24	1.36	2.47	.19	4.26
Bradford, N. Y.	.38	1.28	1.93	0	3.59
Alfred, N. Y.	.26	.95	3.53	0	4.74
Addison, N. Y.	.35	1.23	3.15	1.37	6.10

TABLE II.—*Table of flood stages*

River and station	Flood stage	May 1946				Previous to 1946	
		From—	To—	Crest	Date	Crest	Date
Tioughnioga:							
Whitney Point, N. Y.	12	27	28	12.7	28	16.6	1942
Chenango:							
Greene, N. Y.	8	28	28	8.6	28	14.3	1942
Binghamton, N. Y.	16	28	29	17.08	28	26.96	1936
Chemung:							
Corning, N. Y.	16	27	28	24.4	28	20.15	1935
Chemung, N. Y.	12	27	29	23.97	28	19.6	1940
Pine Creek:							
Cedar Run, Pa.	12	27	28	14.37	28	11.39	1936
West Branch:							
Renova, Pa.	16	27	28	20.15	28	29.39	1936
Lock Haven, Pa.	21	28	29	26.85	28	32.3	1936
Williamsport, Pa.	20	27	29	29.63	28	33.57	1936
Lewisburg, Pa.	18	28	30	29.0	29	32.13	1936
Juniata:							
Newport, Pa.	22	----------	----------	15.6	28	34.24	1936
Susquehanna:							
Oneonta, N. Y.	12	27	31	16.25	29	20.5	1936
Bainbridge, N. Y.	12	28	29	14.1	28	22.1	1914
Vestal, N. Y.	14	27	30	19.96	28	30.5	1936
Towanda, Pa.	16	27	29	25.08	29	25.03	1936
Wilkes-Barre, Pa.	22	28	30	32.01	29	33.07	1936
Danville, Pa.	20	28	31	26.03	29	28.0	1936
Sunbury, Pa.	16	28	30	22.99	29	26.85	1936
Harrisburg, Pa.	17	28	30	21.80	29	30.3	1936

CLIMATOLOGICAL DATA FOR JULY 1946

CONDENSED CLIMATOLOGICAL SUMMARY OF TEMPERATURE AND PRECIPITATION BY SECTIONS

[For description of tables and charts, see Review, January 1943, p. 15]

In the following table are given for the various sections of the climatological service of the Weather Bureau the monthly average temperature and total rainfall; the stations reporting the highest and lowest temperatures, with dates of occurrence; the stations reporting the greatest and least total precipitation; and other data as indicated by the several headings.

The mean temperature for each section, the highest and lowest temperatures, the average precipitation, and the greatest and least monthly amounts are found by using all trustworthy records available.

The mean departures from normal temperatures and precipitation are based only on records from stations that have 10 or more years of observations. Of course, the number of such records is smaller than the total number of stations.

Section	Temperature							Precipitation					
			Monthly extremes							Greatest monthly		Least monthly	
	Section average	Departure from the normal	Station	Highest	Date	Station	Lowest	Date	Section average	Departure from the normal	Station	Amount	Station	Amount
	°F.	°F.		°F.			°F.		In.	In.		In.		In.
Alabama	79.4	−0.9	Valley Head	99	11	Rock Mills	59	20	6.99	+1.40	Robertsdale	17.46	Flat Rock	2.23
Arizona	80.0	−.2	5 stations	114	31	Alpine	31	1	2.30	+.19	Canelo R. S.	6.44	Yuma Citrus Station	.13
Arkansas	80.8	+.3	2 stations	106	[1] 19	Corning	51	14	3.94	+.23	Arkansas City	9.92	Siloam Springs	.06
California	72.9	−.5	Cow Creek	119	27	Twin Lakes	30	3	.33	+.25	Seven Oaks	5.95	30 stations	.00
Colorado	68.7	+1.5	Eversoll Ranch	107	27	Pearl	23	10	2.20	+.06	Idalia	7.37	Alothe	.09
Florida	81.2	−.1	Eustis	99	15	2 stations	62	18	9.05	+1.64	Perry	15.61	Ortona	2.84
Georgia	79.0	−1.0	Camilla	99	9	Blairsville	51	28	4.97	−.79	Quitman	10.28	Woodstock	1.11
Idaho	68.6	+.5	Lewiston	110	21	Landmark	27	[1] 6	.70	+.04	Pierce	2.31	Swan Falls	.00
Illinois	76.3	−.2	3 stations	104	[1] 9	Rockford Airport	49	26	2.40	−.79	Du Quoin	5.74	2 stations	.09
Indiana	75.1	−.6	La Porte	105	18	2 stations	45	26	2.62	−.69	Scottsburg	8.40	Notre Dame	.01
Iowa	73.8	−.8	Keokuk	100	18	Decorah	40	26	2.45	−1.21	Albia	10.21	Dubuque Lock and Dam.	.32
Kansas	81.3	+2.1	Hill City	111	17	2 stations	50	[1] 11	1.85	−1.27	Greenleaf	8.55	Anthony	.08
Louisiana	81.3	−.6	2 stations	100	[1] 18	North Livingston Tower.	61	[1] 1	8.52	+2.35	Jeanerette	22.88	Grand Cateau	1.90
Maryland-Delaware.	73.8	−1.3	2 stations, Md	99	[1] 19	Oakland, Md	36	27	4.00	−.37	Bridgeville, Del	8.26	Western Port, Md	.76
Michigan	69.1	−.1	4 stations	100	[1] 18	3 stations	33	[1] 15	1.54	−1.17	Onaway	5.28	Benton Harbor	.00
Minnesota	70.1	+.1	Moorhead	98	29	2 stations	36	[1] 24	2.42	−.85	Morris	5.85	Rochester	.41
Mississippi	80.0	−1.1	Pearlington	97	27	4 stations	62	[1] 22	7.54	+2.42	Magnolia	15.16	Pelahatchie	2.98
Missouri (June)	73.9	+.3	Tarkio	104	15	3 stations	37	[1] 3	2.70	−2.02	Edgerton	9.19	East End	.35
Nebraska	76.2	+.7	2 stations	107	9	Gordon	42	11	2.03	−1.04	Holdrege	7.06	Minatare	T
Nevada	73.4	+.8	Overton	116	31	Sheldon	31	31	1.00	+.61	Geyser	2.59	2 stations	.08
New England	68.0	−1.1	3 stations	99	[1] 19	Bloomfield, Vt	30	16	3.22	−.54	Westfield, Mass	6.74	Brockton, Mass	.71
New Jersey	73.2	−.7	Hightstown	98	20	Charlotteburg	40	17	5.91	+1.21	Charlotteburg	8.68	Long Branch	3.29
New Mexico	73.0	+.7	Tucumcari No. 2	110	4	Red River	30	1	2.07	−.38	Cloudcroft	6.52	Agricultural College	.14
New York	69.2	−.6	Utica	100	19	Indian Lake	32	16	3.76	−.17	Yorktown Heights	9.74	Alexandria Bay	1.02
North Carolina	75.5	−1.4	Salisbury	100	21	Transou	42	29	7.06	+1.04	Hofmann Forest	24.12	Hickory	2.03
North Dakota	70.6	+1.6	Center	105	31	Belcourt	34	25	2.17	−.26	Forman	5.46	Larimore	.16
Ohio	72.7	−1.0	Hamilton	100	19	2 stations	41	27	3.09	−.70	Utica	9.68	Findlay	.92
Oklahoma	83.6	+1.8	Alva	113	[1] 14	2 stations	50	[1] 4	.84	−1.93	Okeene	3.53	13 stations	.00
Oregon	65.5	−1.0	Medford	115	20	Chemult	22	9	.46	+.05	Astoria	2.64	3 stations	.00
Pennsylvania	70.7	−1.5	Marcus Hook	101	7	Kane	34	16	4.05	−.23	Wilkes-Barre	12.27	Mucersburg	.84
South Carolina	78.2	−1.7	Sumter	100	8	Heath Springs	51	19	6.37	+.48	Charleston	10.13	McCormick	1.96
South Dakota	73.9	+.8	Midland	110	31	Ralph	39	25	2.06	−.35	Eureka	5.97	2 stations	T
Tennessee	77.9	+.1	Halls	99	[1] 11	Rugby	53	[1] 23	4.48	0	Ashwood	9.96	Waynesboro	1.07
Texas	83.8	+.8	Henrietta	115	28	Floydada	52	20	1.50	−1.08	Liberty	10.53	9 stations	.00
Utah	73.1	+1.3	2 stations	107	[1] 1	Silver Lake (Brighton)	30	10	.76	−.14	G. B. E. S. Oaks	3.32	Vernal	.00
Virginia	73.4	−2.0	2 Stations	99	[1] 21	Luray	41	5	5.08	+.38	Emporia	11.29	Cheriton	1.37
Washington	65.9	−.4	Richland	110	20	Stockdill Ranch	30	16	.65	−.01	Kid Valley	3.73	Cle Elum	.00
West Virginia	72.5	−.7	Inwood	100	[1] 19	2 stations	35	27	3.20	−1.41	Valley Head	7.79	Piedmont	.77
Wisconsin	70.0	−.1	5 stations	98	18	Lacona	33	28	1.76	−1.66	North Pelican	5.22	Whitewater	.16
Wyoming	68.0	+2.2	Morrisey	106	29	2 stations	25	[1] 7	.96	−.35	Crandall Creek	2.95	Elk Mountain	.01
Alaska (June)	52.8	+.3	3 stations	86	[1] 8	Barrow	19	1	1.14	−.59	North Dutch Island	4.38	Nunivak	.03
Puerto Rico	78.4	+.1	Ponce	98	24	Garzas	57	[1] 17	3.85	+1.87	Maricao	14.79	Santa Isabel	.20

[1] Other dates also.

CLIMATOLOGICAL DATA FOR WEATHER BUREAU STATIONS FOR JULY 1946

District and station	Elevation of instruments: Barometer above sea level	Elevation of instruments: Thermometer above ground	Elevation of instruments: Anemometer above ground	Pressure: Station	Pressure: Sea level	Pressure: Departure from normal	Temperature of the air: Mean	Temperature of the air: Departure from normal	Temperature of the air: Minimum	Temperature of the air: Date	Temperature of the air: Mean maximum	Temperature of the air: Minimum	Temperature of the air: Date	Temperature of the air: Mean minimum	Temperature of the air: Greatest daily range	Total degree days	Mean temperature of the dew point	Mean relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	Precipitation: Days with 0.01 inch or more	Wind: Average hourly velocity	Wind: Prevailing direction	Wind: Maximum velocity: Miles per hour	Wind: Maximum velocity: Direction	Wind: Maximum velocity: Date	Average cloudiness, tenths: Clear days	Average cloudiness, tenths: Partly cloudy days	Average cloudiness, tenths: Cloudy days	Average cloudiness, tenths	Total snowfall	Snow, sleet, and ice on ground at end of month	Number of days with thunderstorms
NEW ENGLAND	Ft.	Ft.	Ft.	Mb.	Mb.	Mb.	°F.	°F.	°F.		°F.	°F.		°F.	°F.		°F.	%	In.	In.	In.		Mi.								0–10	In.	In.	
							67.5	−0.7										76	2.86	−0.7											5.9			
Eastport	75	67	85	1,014.2	1,016.9	+3.8	60.4	0.0	83	20	69	48	17	52	30	144	51	78	2.18	−.90	0.84	8	8.4	s.	25	sw.	25	10	11	10	5.9	.0	.0	5
Greenville, Maine	1,070	6	41	978.0	1,016.9		61.8	−3.3	88	18	76	35	16	48	44	125	56	76	3.45	−.8	.97	13	3.1	s.	18		15	3	18	10		.0	.0	3
Portland, Maine [1]	103	5	43	1,013.2	1,016.9	+2.7	65.5	−.3	95	20	77	41	17	54	40	64	57	76	2.22	−1.0	1.03	7	8.5	s.	30	e.	20	10	10	11	5.5	.0	.0	2
Concord [1]	289	4	45	1,006.8	1,017.3	+2.7	67.9	+.5	97	19	82	38	16	54	46	27	57	71	3.05	−.5	1.48	7	6.9	nw.	26	nw.	15	7	13	11	5.9	.0	.0	1
Burlington [1]	403	6	51	1,001.7	1,016.3	+2.4	68.6	−1.7	94	19	80	44	16	57	38	29	58	70	3.89	+.4	1.69	12	8.6	s.	27	sw.	11	7	13	11	5.8	.0	.0	3
Boston [1]	124	33	62	1,012.9	1,017.3	+2.7	70.8	−.9	96	19	80	54	17	62	31	18	58	68	2.22	−1.3	1.26	5	10.6	sw.	35	sw.	23	10	7	14	6.1	.0	.0	2
Nantucket	12	11	59	1,017.6	1,018.0	+2.8	65.7	−2.1	80	7	73	47	16	58	23	55	62	89	3.66	+.8	1.98	8	11.4	sw.	26	sw.	2	7	10	14	6.5	.0	.0	3
Block Island	26	11	46	1,017.3	1,018.3	+3.4	67.8	−.6	81	7	74	55	17	62	18	8	64	89	1.54	−1.5	.69	7	11.9	sw.	27	sw.	1	10	9	12	5.5	.0	.0	2
Providence [2]	159	46	60	1,012.2	1,018.0	+3.1	72.8	−.6	96	19	83	50	17	62	32	1	60	77	1.25	−2.0	.53	7	8.1	sw.	30	sw.	23	8	11	12	6.1	.0	.0	2
Hartford [1]	159	3	44	1,011.9	1,017.3	+2.4	71.6	.0	95	19	82	49	17	61	36	1	62	75	4.84	+.8	2.86	7	7.3	s.	23	s.	1	9	8	14	6.1	.0	.0	5
New Haven [1]	107	5	39	1,013.9	1,017.6	+2.7	70.4	+1.1	91	7	79	50	17	62	31	6	62	78	2.18	−1.8	1.02	7	6.5	sw.	18	s.	23	10	9	12	5.7	.0	.0	5
MIDDLE ATLANTIC							74.8	−0.4										75	5.19	+0.8										5.2			
Albany [1]	97	26	40	1,013.2	1,016.6	+2.0	71.0	+.1	93	19	83	44	16	59	43	4	60	70	3.20	+.4	1.05	10	6.9	se.	25	n.	15	10	11	10	5.4	.0	.0	6
New York	314	415	454	1,005.8	1,016.9	+1.7	74.1	+.3	92	20	82	58	15	66	23	0	62	74	4.45	+.2	2.81	6	10.1	s.	50	s.	23	12	10	9	5.2	.0	.0	4
Harrisburg [1]	374	30	49	1,004.1	1,017.3	+2.1	74.6	−.2	96	19	86	52	16	63	36	0	62	71	3.36	−.5	1.52	9	5.9	sw.	26	nw.	20	12	6	13	5.3	.0	.0	6
Philadelphia [1]	114	6	56	1,013.5	1,017.6	+2.4	76.2	.0	95	20	85	59	16	68	25	0	64	74	5.18	+1.0	3.44	8	7.0	sw.	18	s.	1	13	9	9	4.9	.0	.0	7
Reading	323	47	306	1,005.8	1,017.3		75.3	+.1	94	19	86	55	16	65	31	0	---	---	4.52	+.3	2.77	7	8.1	s.	43	sw.	20	13	9	9	4.8	.0	.0	6
Scranton	805	72	104	988.8	1,017.6	+2.4	72.0	+.3	94	19	83	50	16	61	35	2	---	---	9.41	+5.4	3.09	12	5.4	n.	19	sw.	9	14	10	7	4.5	.0	.0	9
Atlantic City	52	37	172	1,015.6	1,017.3	+2.1	72.5	+.4	85	7	78	58	17	68	18	0	66	84	3.87	−.1	3.01	6	12.8	s.	38	s.	23	8	11	12	5.7	.0	.0	3
Trenton	190	89	107	1,010.8	1,017.6		75.0	+.5	97	20	84	56	16	66	31	0	62	71	4.13	+.2	3.27	6	7.5	s.	34	nw.	20	11	12	8	5.3	.0	.0	4
Baltimore [3]	123	100	215	1,013.2	1,017.6	+2.4	77.3	+.1	95	20	86	59	16	68	25	0	65	72	5.37	+.7	2.52	9	8.3	s.	26	nw.	20	14	7	10	4.7	.0	.0	6
Washington [3]	112	56	100	1,013.5	1,017.6	+1.7	77.2	+.4	96	8	88	57	17	66	31	0	65	72	3.86	−.8	1.76	9	5.6	s.	25	nw.	21	13	3	15	5.5	.0	.0	7
Cape Henry	18	8	54	1,016.3	1,016.9		76.0	−1.5	94	21	83	58	30	70	26	0	68	80	4.46	−.9	1.68	7	11.3	ne.	49	nw.	25	12	8	11	5.3	.0	.0	5
Lynchburg	686	144	184	993.2	1,017.6	+1.3	73.8	−2.3	94	20	84	56	27	64	30	0	65	80	5.27	+1.1	1.60	13	6.9	ne.	26	se.	22	10	11	10	5.6	.0	.0	11
Norfolk [3]	91	80	125	1,014.2	1,017.6	+1.7	76.8	−1.9	96	25	84	64	30	70	24	0	68	80	7.24	+1.5	3.69	12	9.4	ne.	29	nw.	25	11	6	14	5.8	.0	.0	6
Richmond	144	11	52	1,011.5	1,016.6	+0.3	75.8	−2.7	93	20	85	59	17	66	28	0	66	77	8.43	+3.7	5.15	13	6.4	ne.	24	nw.	25	11	8	12	5.2	.0	.0	7
SOUTH ATLANTIC							78.2	−0.6										81	9.11	+3.4										6.6			
Asheville	2,253	77	92	940.1	1,017.3	+.7	73.8	+2.1	91	14	83	57	30	64	28	0	64	83	6.49	+2.2	2.28	13	6.0	se.	26	ne.	20	0	12	19	7.8	.0	.0	12
Charlotte [3]	779	63	86	989.5	1,016.9	+.3	77.8	−.6	96	8	87	63	30	69	27	0	67	77	4.62	−.5	1.73	14	6.0	ne.	23	n.	25	3	11	17	7.0	.0	.0	13
Greensboro [1]	886	6	56	986.5	1,017.6		75.8	−1.4	93	21	86	55	18	65	33	0	66	82	7.86	+2.7	4.13	14	7.3	ne.	29	n.	25	7	10	14	6.4	.0	.0	8
Hatteras	11	5	50	1,016.8	1,016.9	+.3	76.6	−1.6	85	14	80	66	18	73	14	0	72	80	17.09	+11.6	5.81	19	11.9	s.	42	s.	6	5	9	17	6.8	.0	.0	8
Raleigh [1]	376	27	69	1,003.7	1,017.3	+.7	76.9	−1.9	95	8	86	57	17	68	25	0	68	82	11.02	+5.6	4.76	14	5.9	ne.	17	n.	25	7	12	12	5.9	.0	.0	7
Wilmington	72	73	107	1,014.6	1,016.9	+.6	77.8	−1.3	95	8	86	60	17	70	23	0	72	86	19.14	+12.0	4.99	17	8.4	s.	35	s.	15	7	10	14	6.2	.0	.0	17
Charleston [3]	48	11	92	1,014.9	1,016.6	+.3	81.8	−.6	95	8	87	68	18	74	20	0	72	85	10.45	+3.6	2.80	17	9.1	s.	25	sw.	31	7	17	7	5.8	.0	.0	17
Columbia, S. C. [3]	347	70	91	1,004.4	1,016.6	.0	79.7	−1.2	96	8	89	64	19	71	25	0	69	76	4.20	−1.2	1.24	14	7.1	s.	26	sw.	9	5	14	12	6.1	.0	.0	9
Greenville, S. C. [1]	1,040	18	36	980.7	1,017.3		77.1	+.2	97	11	86	62	27	68	27	0	67	78	6.02	+.7	1.49	15	7.6	ne.	24	w.	15	2	13	16	7.1	.0	.0	14
Augusta [3]	182	62	77	1,010.2	1,016.6	.0	80.8	−.5	96	8	90	65	19	72	25	0	68	75	3.10	−2.3	2.02	7	5.4	s.	21	s.	21	2	17	12	6.7	.0	.0	9
Savannah [3]	65	73	152	1,014.6	1,016.6	−.3	81.2	+.3	98	8	90	67	18	72	25	0	72	82	9.31	+2.7	2.48	16	8.9	sw.	30	sw.	31	2	15	14	6.8	.0	.0	19
Jacksonville [3]	43	86	110	1,015.6	1,017.3	+.4	81.2	−.9	94	15	89	70	8	74	23	0	73	82	10.05	+3.3	3.78	21	7.3	sw.	28	sw.	13	1	19	11	6.8	.0	.0	13
FLORIDA PENINSULA							82.1	−0.0										80	7.68	+2.0										6.4			
Key West [3]	21	10	64	1,016.3	1,016.9	.0	84.2	+.7	91	12	89	72	21	79	18	0	74	74	5.82	+2.5	2.81	9	6.5	se.	19	nw.	21	3	21	7	6.0	.0	.0	9
Miami [3]	25	242	249	1,016.6	1,017.3	.0	80.4	−1.4	89	12	86	69	4	75	19	0	72	84	3.56	−2.0	1.32	14	9.7	se.	31	ne.	4	2	21	8	6.2	.0	.0	18
Tampa [1]	35	6	43	1,016.3	1,017.3	.0	82.1	+.9	96	6	90	68	19	74	25	0	74	82	13.68	+5.7	4.66	14	6.9	w.	26	s.	29	0	18	13	7.1	.0	.0	21
EAST GULF							80.0	−0.7										83	7.23	+1.6										6.9			
Atlanta [1]	1,173	33	72	976.0	1,016.6	.0	77.8	−1.3	94	12	87	61	29	69	32	0	68	79	2.26	−2.6	.95	12	8.2	e.	32	sw.	21	3	11	17	6.8	.0	0	10
Macon [3]	370	79	87	1,003.4	1,016.3	−.3	79.5	−1.7	94	20	88	63	29	71	31	0	70	80	6.25	+1.5	2.27	12	4.8	e.	23	sw.	21	2	10	19	7.4	.0	.0	15
Apalachicola	35	11	51	1,015.2	1,016.3		81.2	−.5	91	16	87	73	16	75	18	0	74	82	5.50	−2.2	1.58	14	7.4	sw.	21	e.	18	6	15	10	6.1	.0	.0	12
Pensacola	56	54	79	1,014.2	1,015.9	−.4	81.1	+.1	94	10	88	71	30	75	21	0	74	80	11.56	+4.8	5.53	15	7.2	w.	26	nw.	2	6	13	12	6.0	.0	.0	13
Anniston	741	9	---	---	---		78.6	+.1	94	11	88	62	20	69	29	0	---	---	2.66	−2.5	.75	14	---	se.	---	---	---	---	5	12	14	---	.0	.0	8
Birmingham [1]	700	5	62	991.9	1,016.6	+.3	78.4	−1.3	94	11	87	67	20	70	26	0	70	82	6.61	+1.4	2.52	15	6.6	se.	37	se.	13	2	15	14	6.7	.0	.0	14
Mobile [3]	57	86	161	1,014.2	1,016.3	.0	81.6	+.2	94	2	89	71	21	74	22	0	73	86	12.48	+5.6	4.85	21	6.7	sw.	27	n.	2	1	17	13	7.0	.0	.0	17
Montgomery [3]	218	92	105	1,008.5	1,016.3	−.3	79.9	−1.8	94	13	88	69	1	72	21	0	72	85	6.36	+1.5	1.92	18	5.8	e.	22	n.	16	1	11	19	7.3	.0	.0	14
Meridian [3]	375	67	92	1,002.7	1,015.9	−.7	79.8	−.6	93	15	89	69	23	71	22	0	72	86	9.52	+4.6	2.83	21	4.9	sw.	23	sw.	5	3	13	15	7.3	.0	.0	14
Vicksburg [3]	247	82	102	1,006.4	1,015.2	−.7	80.4	−.9	93	18	88	67	1	73	21	0	74	90	7.05	+2.5	2.71	15	6.0	sw.	24	n.	18	2	10	19	7.6	.0	.0	10
New Orleans [4]	53	50	84	1,013.9	1,015.9	.0	81.8	-----	94	27	90	70	23	74	19	0	73	83	9.37	+3.0	1.76	14	5.2	w.	18	nw.	1	3	9	19	7.3	.0	.0	13
WEST GULF							83.5	+0.5										73	2.70	−0.5										4.9			
Shreveport [1]	249	5	64	1,006.4	1,015.2	.0	82.8	−.4	97	25	92	68	2	74	24	0	72	80	4.58	+1.0	1.91	8	6.5	sw.	29	se.	19	4	15	12	6.2	.0	.0	11
Fort Smith	463	57	82	998.3	1,014.2	−.7	82.6	+1.1	102	27	95	62	3	70	31	0	69	70	.53	−2.8	.31	6	5.9	ne.	30	n.	11	13	12	6	4.5	.0	.0	5
Little Rock [1]	357	5	88	1,003.1	1,015.6	.0	81.5	+.6	97	18	91	68	31	72	27	0	70	76	2.56	−.9	.97	5	6.6	sw.	30	nw.	1	8	17	6	5.3	.0	.0	7
Austin [1]	605	10	41	993.6	1,014.6		83.8	−.1	100	12	95	70	19	72	28	0	68	67	1.48	−.8	.72	3	7.9	s.	29	nw.	21	17	10	4	4.0	.0	.0	3
Brownsville [1]	57	5	54	1,011.9	1,013.9		85.3	+1.7	98	30	94	73	12	76	23	0	74	79	.09	−2.2	.09	1	11.5	se.	24	se.	15	8	19	4	4.9	.0	.0	1
Corpus Christi [1]	20	4	33	1,014.2	1,014.9	+.3	83.6	+2.0	101	30	93	69	12	74	27	0	74	80	1.61	-----	1.19	4	10.3	se.	27	se.	10	10	18	3	4.4	.0	.0	4
Dallas [1]	512	5	45	996.3	1,014.2		86.5	+2.3	104	12	98	68	1	75	28	0	67	60	.45	−2.4	.41	3	8.9	s.	26	n.	1	20	9	2	3.2	.0	.0	3
Fort Worth [1]	679	5	86	990.5	1,014.2	−.4	85.4	+1.8	104	29	97	68	1	74	28	0	66	59	.90	−1.7	.78	4	9.4	s.	39	ne.	1	22	8	1	2.6	.0	.0	3
Galveston [3]	54	106	114	1,013.9	1,015.6	+.4	82.0	−1.4	94	27	87	72	2	77	16	0	75	84	7.24	+3.5	2.62	10	8.7	s.	25	nw.	1	9	6	16	6.0	.0	.0	14
Houston [3]	138	157	190	1,010.5	1,014.9		82.7	−1.0	97	29	91	68	2	74	25	0	74	82	5.44	+1.4	1.84	12	7.3	s.	29	n.	1	12	15	4	4.6	.0	.0	6
Palestine	510	64	72	997.6	1,015.2	+.3	82.3	+.1	97	27	91	68	3	73	22	0	70	70	1.47	−1.2	1.20	6	6.3	s.	17	n.	1	12	15	4	4.6	.0	.0	16
Port Arthur	34	59	134	1,013.9	1,015.2		82.6	−.2	96	28	89	71	2	76	19	0	74	84	8.66	+1.7	3.20	16	9.8	sw.	29	ne.	12	5	10	16	6.8	.0	.0	16
San Antonio [1]	693	6	51	990.5	1,014.6	+.4	84.4	+.6	103	29	97	67	12	71	35	0	68	65	.20	−2.0	.10	3	7.9	se.	23	se.	15	6	20	5	5.1	.0	.0	4
OHIO VALLEY AND TENNESSEE							75.9	+0.1										74	3.20	−0.5										5.6			
Chattanooga [1]	762	6	66	989.5	1,016.6	.0	78.8	+1.4	95	16	88	62	28	69	25	0	70	80	5.18	+.9	1.08	11	5.5	s.	23	e.	2	2	14	15	6.9	.0	.0	15
Knoxville [1]	995	27	53	982.1	1,016.9	+1.0	78.8	+2.1	94	19	89	62	28	69	26	0	68	78	3.10	−1.3	1.04	11	5.8	sw.	38	n.	25	4	14	13	6.4	.0	.0	12
Memphis [4]	399	5	86	1,001.4	1,015.2	−.7	80.6	+.7	97	11	91	64	14	71	31	0	70	76	1.69	−1.5	.60	11	6.2	e.	20	e.	10	8	12	11	5.6	.0	.0	10
Nashville [1]	546	5	72	996.6	1,015.9	−.4	79.4	+.3	94	11	89	63	27	70	30	0	68	76	4.86	+1.0	1.66	11	6.4	n.	31	nw.	21	2	18	11	6.3	.0	.0	8
Lexington	989	6	---	982.1	1,017.3	+1.0	74.8	−1.1	94	19	85	57	27	64	27	0	65	78	5.84	+2.2	1.64	9	---	ne.	---	---	---	11	10	10	5.2	.0	.0	13

See footnotes at end of table.

CLIMATOLOGICAL DATA FOR WEATHER BUREAU STATIONS FOR JULY 1946—Continued

District and station	Elevation of instruments: Barometer above sea level	Elevation of instruments: Thermometer above ground	Elevation of instruments: Anemometer above ground	Pressure: Station	Pressure: Sea level	Pressure: Departure from normal	Temperature of the air: Mean	Temperature of the air: Departure from normal	Temperature of the air: Maximum	Temperature of the air: Date	Temperature of the air: Mean maximum	Temperature of the air: Minimum	Temperature of the air: Date	Temperature of the air: Mean minimum	Temperature of the air: Greatest daily range	Total degree days	Mean temperature of the dew point	Mean relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	Precipitation: Days with 0.01 inch or more	Wind: Average hourly velocity	Wind: Prevailing direction	Wind: Maximum velocity: Miles per hour	Wind: Maximum velocity: Direction	Wind: Maximum velocity: Date	Clear days	Partly cloudy days	Cloudy days	Average cloudiness, tenths	Total snowfall	Snow, sleet, and ice on ground at end of month	Number of days with thunderstorms
OHIO VALLEY AND TENNESSEE—Con.	Ft.	Ft.	Ft.	Mb.	Mb.	Mb.	°F.	°F.	°F		°F	°F.		°F.	°F.		°F.	%	In.	In.	In.		Mi.								0–10	In.	In.	
Louisville [1]	525	106	120	998.0	1,016.9	+1.0	76.1	−1.5	96	18	87	57	27	65	30	0	65	72	3.11	−0.6	1.82	10	6.0	n.	29	nw.	11	9	13	9	5.5	.0	.0	11
Evansville [1]	431	12	40	1,001.4	1,016.6	+.7	76.5	.0	97	18	87	58	28	66	31	0	66	76	3.06	−.4	1.01	9	6.1	ne.	49	n.	30	7	14	10	6.1	.0	.0	8
Indianapolis [1]	823	5	54	987.5	1,016.9	+1.3	74.8	+.5	97	19	86	54	26	63	29	0	61	68	1.58	------	.93	6	7.2	n.	38	w.	11	11	11	9	5.1	.0	.0	6
Terre Haute [2]	575	68	149	997.0	1,016.9	-----	76.9	−.1	99	18	88	57	2	66	29	0	64	69	1.79	−1.	4.92	8	7.2	s.	26	w.	19	12	12	7	4.9	.0	.0	7
Cincinnati [2]	627	11	51	994.6	1,017.3	+1.4	77.2	+2.1	99	19	87	59	26	67	28	0	65	78	2.48	−.8	1.11	8	4.9	e.	24	nw.	11	9	13	9	5.5	.0	.0	8
Columbus [2]	822	90	110	988.5	1,017.6	+1.7	75.0	+.1	97	10	86	53	26	64	33	0	62	70	3.95	+.4	2.00	11	6.8	s.	28	sw.	19	14	10	7	4.7	.0	.0	11
Dayton [1]	1,003	6	55	982.1	1,017.6	-----	73.6	−1.3	95	19	84	53	26	63	31	0	62	70	3.54	+.2	1.76	9	7.3	ne.	43	nw.	24	12	9	10	5.1	.0	.0	7
Elkins [1]	1,947	61	78	950.6	1,018.6	+2.3	68.4	−1.4	89	11	81	42	27	56	36	17	62	87	2.99	−2.4	1.17	14	4.0	nw.	25	nw.	21	9	7	15	6.0	.0	.0	10
Parkersburg	637	77	84	994.6	1,017.3	+1.0	74.7	−.7	95	19	86	56	26	64	30	0	62	70	2.21	−2.1	.91	8	5.0	se.	16	ne.	24	10	9	12	5.5	.0	.0	9
Pittsburgh [1]	842	39	54	987.5	1,017.6	+1.7	73.0	.0	95	11	84	52	16	62	29	0	60	68	2.70	−1.4	1.35	12	7.8	s.	26	w.	11	10	11	10	5.3	.0	.0	9
LOWER LAKES																																		
							71.3	+0.6										67	2.60	−0.6											4.5			
Buffalo [1]	768	34	96	989.8	1,017.6	+2.7	71.1	+1.1	94	11	83	50	16	60	33	7	59	68	2.75	−.3	1.28	8	10.1	sw.	38	nw.	19	14	10	7	5.0	.0	.0	5
Canton	448	10	61	1,000.3	1,015.9	+1.3	68.0	−.6	92	19	80	41	16	56	34	26	56	68	2.22	−1.3	1.07	10	6.5	sw.	30	sw.	1	9	15	7	5.2	.0	.0	8
Oswego	335	71	85	1,004.7	1,016.9	+2.0	69.4	+.2	94	19	78	50	16	61	30	16	59	70	2.60	−.3	1.56	12	6.9	s.	29	n.	14	16	9	6	4.4	.0	.0	4
Rochester [1]	523	5	69	998.6	1,017.6	+2.7	70.5	+.7	94	11	82	48	16	59	32	14	58	68	2.81	−.2	1.61	7	7.3	sw.	40	sw.	1	13	11	7	4.7	.0	.0	5
Syracuse [1]	596	5	57	995.9	1,017.6	+2.7	69.6	+.3	97	19	82	44	16	58	41	17	60	70	3.24	−.4	1.29	8	7.7	sw.	34	sw.	1	8	14	9	5.6	.0	.0	5
Erie [2]	714	57	81	992.2	1,018.0	+2.8	72.1	+1.1	95	11	80	55	16	64	24	6	60	72	4.47	+1.5	1.61	11	6.3	ne.	23	sw.	11	15	10	6	4.3	.0	.0	6
Cleveland [1]	762	27	54	990.5	1,017.6	+2.0	72.3	+.4	94	7	85	46	26	60	35	11	59	65	1.26	−2.2	.46	9	8.3	s.	35	sw.	11	12	14	5	4.5	.0	.0	7
Sandusky	629	5	67	994.9	1,017.6	+2.0	73.6	+.2	98	19	83	53	17	64	29	0	----	----	3.24	−.2	2.18	7	7.2	e.	21	sw.	11	15	13	3	3.7	.0	.0	7
Toledo [1]	628	5	47	994.9	1,017.6	+2.0	72.6	+.8	99	19	85	48	17	60	37	5	60	68	1.56	−1.5	1.22	8	8.3	sw.	34	sw.	11	13	13	5	4.5	.0	.0	6
Fort Wayne [1]	857	5	33	986.8	1,016.9	-----	72.8	+.4	95	18	85	52	27	60	34	0	60	66	3.42	−.2	1.46	7	5.5	se.	30	nw.	21	14	11	6	4.3	.0	.0	6
Detroit [1]	730	5	78	992.2	1,018.0	+2.8	73.3	+2.3	100	19	84	52	16	63	29	1	58	62	1.10	−2.2	.59	8	7.1	n.	31	w.	19	15	10	6	4.3	.0	.0	6
UPPER LAKES																																		
							68.9	+1.1										68	1.27	−1.8											4.4			
Alpena	609	5	89	995.6	1,018.3	+3.4	66.2	+.3	88	18	75	48	26	57	26	41	56	71	1.85	−.91	.05	9	9.0	nw.	29	nw.	1	13	14	4	4.5	.0	.0	7
Escanaba	612	51	72	995.6	1,018.0	+3.1	67.0	+1.0	86	19	75	50	15	59	25	21	57	70	1.80	−1.5	.58	8	8.8	s.	28	n.	14	13	11	7	4.5	.0	.0	4
Grand Rapids [2]	707	79	244	992.2	1,017.6	+2.4	73.8	+1.5	96	18	85	54	16	63	28	0	57	64	1.38	−1.5	.74	5	8.5	sw.	36	se.	9	18	8	5	3.8	.0	.0	6
Lansing [2]	878	5	90	986.1	1,017.6	-----	70.8	−.1	95	19	82	49	2	59	30	12	56	60	.25	−2.8	.12	3	6.5	n.	20	n.	1	13	12	6	4.4	.0	.0	3
Marquette	734	44	73	990.5	1,017.6	+3.0	67.0	+2.1	90	5	77	45	15	57	33	37	55	66	.93	−2.2	.45	4	7.5	sw.	23	s.	10	13	12	6	4.6	.0	.0	7
Sault Sainte Marie [1]	614	11	52	995.3	1,017.6	+2.7	62.8	+.1	83	17	75	43	15	51	35	87	54	76	1.08	−1.6	.49	8	9.2	nw.	28	nw.	1	13	11	7	5.0	.0	.0	3
Chicago [1]	673	5	36	993.2	1,017.3	+2.1	74.6	+1.9	100	18	85	56	26	64	29	0	60	63	2.49	−.9	2.46	3	6.9	e.	22	w.	9	18	9	4	3.7	.0	.0	2
Green Bay	617	109	141	995.3	1,018.0	+3.1	70.2	+.2	93	10	81	51	26	59	32	2	58	66	.70	−2.8	.54	5	6.7	s.	21	w.	20	7	19	5	5.0	.0	.0	7
Milwaukee [1]	681	33	66	992.9	1,017.6	+2.7	70.7	+2.5	91	7	81	51	26	61	29	6	60	70	.95	−1.9	.41	5	9.3	se.	29	sw.	10	12	14	5	4.5	.0	.0	4
Duluth [2]	1,133	5	47	976.3	1,017.3	+3.1	65.9	+2.0	90	13	76	46	24	56	33	46	56	74	1.30	−2.5	.62	5	9.6	ne.	38	nw.	11	15	10	6	4.5	.0	.0	5
NORTH DAKOTA																																		
							71.4	+3.3										67	1.92	−0.2											4.6			
Fargo [1]	940	5	43	981.4	1,015.6	+1.7	71.2	+3.1	94	13	83	47	24	60	31	11	60	72	.98	−2.4	.32	8	11.0	s.	39	nw.	10	9	16	6	4.8	.0	.0	6
Bismarck [1]	1,677	5	43	955.3	1,014.6	+1.1	73.6	+4.2	104	31	87	49	11	60	38	3	58	66	2.10	−.1	.97	9	10.9	se.	50	w.	31	12	12	7	4.5	.0	.0	10
Devils Lake	1,478	11	44	962.8	1,015.6	+2.1	70.6	+3.2	98	31	83	47	24	58	37	15	58	70	1.60	−1.0	.75	7	7.6	se.	29	nw.	10	13	12	6	4.7	.0	.0	7
Grand Forks [1]	832	4	41	985.4	1,015.6	-----	70.0	----	95	30	83	43	24	57	41	21	58	70	.64	------	.39	5	----	se.	----	----	----	12	12	7	----	.0	.0	3
Williston	1,878	42	50	947.5	1,012.9	−.3	71.8	+2.9	98	26	84	50	1	60	34	10	54	59	4.32	+2.4	2.13	8	6.8	se.	46	w.	17	9	22	0	4.5	.0	.0	10
UPPER MISSISSIPPI																																		
							75.3	+0.6										69	1.70	−1.8											4.9			
Minneapolis-St. Paul [1]	919	43	74	983.4	1,015.9	+1.7	73.6	+1.3	93	9	84	55	1	63	29	0	61	68	2.76	−1.0	1.54	9	8.8	se.	33	w.	14	10	14	7	5.2	.0	.0	6
Springfield, Minn.	1,025	4	42	979.7	1,016.3	-----	73.8	------	96	13	85	52	1	63	33	0	62	68	1.97	------	1.11	7	----	se.	----	----	----	14	7	10	----	.0	.0	7
La Crosse [1]	714	5	29	991.2	1,017.3	+2.7	71.8	.0	92	8	83	49	26	61	32	2	62	72	.83	−3.1	.37	6	7.0	s.	22	nw.	10	11	12	8	5.2	.0	.0	7
Madison [2]	974	70	78	982.7	1,018.0	+3.1	72.9	+.8	94	18	82	55	15	64	26	1	59	67	1.23	−2.6	.79	7	5.9	nw.	18	ne.	14	12	12	7	4.8	.0	.0	3
Charles City	1,015	10	51	981.4	1,017.6	+3.0	72.0	−.3	96	18	82	51	26	62	29	2	----	----	.82	−3.0	.27	13	4.9	se.	19	se.	9	15	8	8	4.5	.0	.0	6
Moline [1]	606	6	50	995.3	1,017.3	-----	74.8	+1.3	97	18	87	55	3	63	35	0	62	68	1.47	−1.9	.93	4	6.4	e.	22	nw.	11	13	13	5	4.7	.0	.0	0
Des Moines [2]	860	5	99	----	1,016.9	+2.3	75.8	+.4	98	18	86	57	25	66	29	0	61	69	1.81	−1.7	.85	9	7.1	se.	23	se.	27	7	15	9	5.6	.0	.0	7
Dubuque	699	81	96	992.2	1,017.3	+2.4	74.4	+.3	97	18	85	55	26	64	29	1	66	76	.53	−3.4	.20	6	4.5	se.	14	nw.	11	14	11	6	4.6	.0	.0	3
Burlington [1]	702	4	38	991.9	1,016.9	+1.7	76.0	+.2	98	10	88	56	25	64	34	0	64	69	1.66	−1.9	.92	6	7.1	se.	29	nw.	11	14	11	6	4.5	.0	.0	7
Cairo	357	5	99	1,003.7	1,016.3	+.4	80.3	−.3	97	18	90	63	27	71	23	0	----	----	2.68	−.4	1.15	8	6.3	ne.	33	ne.	9	8	11	12	5.8	.0	.0	69
Peoria [1]	609	6	26	995.3	1,017.3	+2.1	76.1	+1.7	97	18	87	56	25	65	29	0	62	66	.79	−2.8	.51	3	7.2	e.	18	e.	9	12	13	6	4.5	.0	.0	4
Springfield, Ill. [2]	636	5	191	994.2	1,016.9	+1.7	78.2	+1.7	99	19	88	59	3	68	29	0	64	72	4.15	+1.3	1.20	8	8.9	e.	26	s.	7	9	15	7	5.0	.0	.0	8
St. Louis [2]	568	6	303	996.3	1,016.3	+.7	78.8	+.5	99	18	90	63	3	71	26	0	----	64	1.45	−1.5	.98	4	9.1	s.	27	sw.	19	13	14	4	----	.0	.0	5
MISSOURI VALLEY																																		
							78.2	+2.8										64	1.99	−1.6											4.6			
Columbia, Mo. [2]	784	6	66	988.2	1,015.9	+.7	80.4	+3.1	104	23	92	59	4	68	35	0	62	62	4.79	+1.3	2.23	6	6.0	e.	23	sw.	27	19	11	1	3.0	.0	.0	11
Kansas City [1]	963	38	76	981.4	1,014.9	.0	81.2	+3.1	104	18	93	60	2	70	31	0	63	60	.94	−2.9	.39	19	8.5	ne.	32	sw.	6	11	18	2	4.5	.0	.0	5
St. Joseph [2]	967	11	49	981.4	1,015.2	-----	79.2	+1.8	101	18	90	59	2	69	28	0	65	67	1.28	−2.5	.64	4	7.0	e.	19	sw.	27	21	8	2	2.9	.0	.0	5
Springfield, Mo [1]	1,324	5	60	969.5	1,015.9	+.7	79.0	+2.8	104	24	91	57	3	67	37	0	65	68	1.47	−2.7	.75	5	9.3	s.	29	nw.	11	16	5	10	4.9	.0	.0	9
Topeka	987	65	87	980.4	1,015.2	-----	81.6	+3.8	106	18	94	60	2	69	37	0	64	60	.89	−3.4	.73	3	7.4	e.	23	se.	27	14	10	7	4.8	.0	.0	5
Lincoln [2]	1,189	11	81	973.2	1,014.6	+.4	78.8	+2.3	101	14	90	59	12	67	33	0	63	67	1.59	−2.3	.84	7	7.4	se.	25	n.	19	10	9	12	5.3	.0	.0	6
Omaha [1]	1,105	5	68	976.6	1,015.9	+1.7	77.2	+2.0	97	14	88	59	1	66	29	0	64	68	1.84	−1.7	.69	6	8.9	se.	26	ne.	19	10	11	10	5.5	.0	.0	4
Valentine	2,598	46	54	925.2	1,015.2	+1.7	75.9	+2.2	103	30	89	51	11	62	40	0	56	56	4.25	+1.2	2.96	6	8.6	s.	46	sw.	17	13	14	4	4.4	.0	.0	10
Sioux City [1]	1,138	5	40	975.3	1,015.6	+2.4	74.8	+1.5	98	9	86	54	1	64	34	3	64	72	1.45	−2.1	.59	9	8.2	s.	27	n.	23	9	11	11	5.7	.0	.0	7
Huron [1]	1,301	5	41	969.2	1,015.2	+1.3	74.4	+2.6	98	30	87	51	25	62	37	0	62	72	1.43	−1.7	.72	7	11.9	se.	34	nw.	10	11	9	11	5.2	.0	.0	13
NORTHERN SLOPE																																		
							71.7	+2.9										54	1.40	0.0											4.6			
Billings [1]	3,570	16	40	892.7	1,013.5	-----	73.7	+1.7	98	29	88	51	9	60	39	8	50	48	.91	------	.53	9	9.8	sw.	56	nw.	3	11	15	5	4.5	.0	.0	10
Havre	2,507	11	67	926.5	1,013.9	+.6	72.6	+4.3	100	30	88	49	1	58	41	0	46	48	1.25	−.6	.76	8	7.4	sw.	43	sw.	13	10	18	3	4.6	.0	.0	12
Helena [1]	4,124	5	43	875.7	1,014.9	+1.4	68.6	+2.9	98	21	85	42	10	52	46	16	47	56	1.41	+.3	.36	12	7.9	w.	50	sw.	14	7	17	7	5.2	.0	.0	17
Missoula [2]	3,205	80	91	903.5	1,015.9	-----	68.9	+2.1	99	29	86	44	10	52	49	23	46	54	3.05	+2.2	1.47	11	6.5	n.	40	s.	30	11	15	5	4.6	.0	.0	10
Kalispell	2,973	48	56	912.3	1,013.2	−.3	67.0	+2.9	95	21	82	45	17	53	40	30	46	54	.97	−.1	.32	7	6.0	w.	20	sw.	21	13	12	6	4.3	.0	.0	4
Miles City [1]	2,371	5	28	930.9	1,012.9	−.3	75.8	------	101	15	90	52	25	61	42	2	53	54	1.22	------	.46	6	----	se.	----	----	----	9	20	2	4.4	.0	.0	10
Rapid City [1]	3,259	5	63	903.5	1,014.9	+1.4	72.6	+1.6	101	31	86	52	11	59	38	5	57	64	2.93	+.8	1.07	12	11.2	s.	42	nw.	27	13	13	5	4.6	.0	.0	15
Cheyenne [1]	6,094	5	40	817.8	1,015.6	+2.4	68.8	+2.1	94	22	83	45	10	55	38	14	48	58	1.42	−.7	.67	11	9.0	w.	35	w.	9	7	16	8	5.5	.0	.0	15
Lander	5,352	60	68	838.8	1,015.2	+2.0	71.9	+4.5	97	22	87	49	10	56	39	2	41	40	.47	−.2	.30	5	8.0	sw.	46	sw.	22	14	13	4	3.9	.0	.0	10
Sheridan [1]	3,790	5	38	885.9	1,014.2	-----	72.0	+3.6	99	29	87	49	19	57	42	3	51	55	.71	−.5	.33	9	7.5	nw.	45	nw.	9	11	16	4	4.5	.0	.0	12
North Platte [2]	2,821	11	51	918.1	1,014.2	+.7	76.9	+4.0	101	22	89	55	11	64	37	0	50	63	1.11	−1.6	.52	8	6.8	s.	24	ne.	27	10	12	9	5.1	.0	.0	13

See footnotes at end of table.

CLIMATOLOGICAL DATA FOR WEATHER BUREAU STATIONS FOR JULY 1946—Continued

District and station	Elevation of instruments: Barometer above sea level	Elevation of instruments: Thermometer above ground	Elevation of instruments: Anemometer above ground	Pressure: Station	Pressure: Sea level	Pressure: Departure from normal	Temperature of the air: Mean	Temperature of the air: Departure from normal	Temperature of the air: Maximum	Temperature of the air: Date	Temperature of the air: Mean maximum	Temperature of the air: Minimum	Temperature of the air: Date	Temperature of the air: Mean minimum	Temperature of the air: Greatest daily range	Total degree days	Mean temperature of the dew point	Mean relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	Precipitation: Days with 0.01 inch or more	Wind: Average hourly velocity	Wind: Prevailing direction	Wind: Maximum velocity: Miles per hour	Wind: Maximum velocity: Direction	Wind: Maximum velocity: Date	Clear days	Partly cloudy days	Cloudy days	Average cloudiness, tenths	Total snowfall	Snow, sleet, and ice on ground at end of month	Number of days with thunderstorms
MIDDLE SLOPE	*Ft.*	*Ft.*	*Ft.*	*Mb.*	*Mb.*	*Mb.*	°*F.*	°*F.*	°*F*			°*F.*			°*F.*		°*F.*	%	*In.*	*In.*	*In.*		*Mi.*								*0–10*	*In.*	*In.*	
							80.5	+3.3										54	1.29	−1.5											4.3			
Denver [2]	5,292	106	113	841.9	1,014.9	+2.0	74.8	+2.6	96	17	87	56	10	63	29	0	50	52	.98	−.7	.38	11	6.7	s.	26	nw.	3	5	20	6	5.2	.0	.0	16
Pueblo [1]	4,690	5	36	859.8	1,014.6	+1.3	76.2	+2.0	99	9	92	54	2	61	41	0	51	52	.95	−1.0	.31	8	8.0	nw.	42	nw.	1	6	18	7	5.5	.0	.0	15
Concordia	1,392	50	58	865.8	1,014.2	.0	79.6	+1.6	102	18	92	60	2	68	34	0	62	60	6.27	+2.5	4.31	8	6.9	se.	27	nw.	16	14	12	5	4.5	.0	.0	6
Dodge City [1]	2,509	5	58	928.2	1,013.2	−.3	82.8	+4.4	106	27	97	60	20	69	35	0	57	47	.17	−3.0	.09	2	15.5	s.	33	s.	9	16	10	5	4.3	.0	.0	8
Wichita [1]	1,358	6	64	967.2	1,013.9	−.7	83.4	+4.0	105	27	96	61	2	71	33	0	58	50	.32	−3.1	.17	5	13.0	se.	32	s.	9	15	10	6	4.4	.0	.0	7
Oklahoma City [3]	1,214	10	47	971.9	1,014.2	−.4	84.0	+3.4	105	27	96	64	21	73	29	0	64	58	.18	−2.7	.15	3	7.5	s.	16	s.	28	22	7	2	2.7	.0	.0	4
Tulsa [1]	674	10	61	990.5	1,014.2	-----	83.4	+2.3	102	27	95	64	2	72	31	0	66	62	.16	−3.1	.36	1	8.9	s.	25	s.	19	16	12	3	3.6	.0	.0	1
SOUTHERN SLOPE																																		
							81.7	+2.4										49	0.36	−2.0										3.9			
Abilene [1]	1,738	4	41	953.9	1,012.5	−1.0	85.7	+4.6	105	14	98	65	22	73	32	0	58	46	T	−2.1	T	0	12.6	s.	37	ne.	1	15	13	3	3.9	.0	.0	2
Amarillo [1]	3,676	5	42	891.6	1,013.1	−.1	80.5	+4.6	102	14	95	59	21	66	35	0	57	50	.12	−2.7	.05	5	13.7	s.	32	sw.	9	14	12	5	4.1	.0	.0	9
Del Rio	960	63	71	979.7	1,011.9	−.6	81.0	−.3	104	30	96	71	12	76	28	0	64	55	.07	−2.3	.05	2	8.8	e.	24	se.	6	14	14	3	4.2	.0	.0	3
Roswell	3,566	75	85	894.7	1,013.9	+2.0	79.8	+.9	101	28	93	60	23	66	34	0	54	47	1.26	−1.0	.68	6	7.5	s.	28	e.	1	14	16	1	3.6	.0	.0	6
SOUTHERN PLATEAU																																		
							82.6	+1.1										46	2.20	+0.5										4.8			
El Paso [1]	3,778	5	85	887.2	1,011.2	+.7	82.0	+2.3	100	28	94	63	6	70	29	0	52	42	.71	−1.3	.37	8	9.0	se.	40	se.	17	10	14	7	5.1	.0	.0	11
Albuquerque [1]	5,314	5	48	841.2	1,012.5	-----	78.3	+1.6	97	16	91	58	22	65	32	0	50	44	2.28	+.9	1.13	14	10.3	se.	50	e.	1	10	18	3	4.9	.0	.0	17
Flagstaff	6,907	36	51	795.5	1,011.9	+1.7	67.4	+1.7	90	27	83	42	2	52	41	10	45	56	4.78	+1.9	1.45	18	----	w.	---	-------	---	5	18	8	5.8	.0	.0	23
Phoenix [1]	1,107	39	87	971.6	1,009.1	+.6	90.4	+.6	110	30	103	68	18	78	34	0	62	44	2.56	+1.5	1.28	5	7.2	w.	32	se.	17	12	15	4	4.5	.0	.0	9
Tucson [1]	2,555	6	30	925.5	1,011.2	-----	86.0	−.4	105	1	99	66	1	73	39	0	59	48	2.44	+.2	1.00	14	----	se.	---	-------	---	2	23	6	5.8	.0	.0	18
Yuma	142	9	54	1,004.1	1,008.8	+1.0	91.6	+.8	114	31	106	67	7	77	43	0	60	42	.44	+.3	.38	2	5.7	s.	21	e.	19	23	6	2	2.7	.0	.0	5
MIDDLE PLATEAU																																		
							74.4	+2.2										41	0.81	+0.3										3.7			
Reno [1]	4,527	20	52	863.9	1,014.6	+3.1	69.3	+1.2	102	20	90	40	31	49	53	10	42	50	.84	+.6	.54	5	7.6	s.	32	w.	30	22	8	1	2.4	.0	.0	5
Winnemucca	4,339	5	56	868.9	1,013.5	+.7	73.8	+3.2	103	21	92	42	31	55	47	0	40	38	.84	+.6	.72	6	7.6	sw.	30	nw.	30	22	7	2	2.6	.0	.0	6
Modena	5,473	10	46	836.4	1,013.2	+2.0	71.8	+1.2	95	10	88	46	2	55	44	0	----	---	1.49	+.4	1.26	6	10.0	sw.	31	nw.	12	13	9	9	4.5	.0	.0	5
Salt Lake City [1]	4,227	32	46	868.3	1,011.9	−.3	77.3	+3.3	100	28	92	50	10	63	39	0	48	40	.55	.0	.51	4	10.2	se.	38	sw.	5	15	12	4	3.9	.0	.0	9
Grand Junction	4,602	60	68	861.8	1,013.9	+1.7	79.9	+2.2	100	27	95	58	10	65	38	0	44	36	.35	−.3	.21	6	6.9	se.	29	se.	30	10	13	8	5.1	.0	.0	14
NORTHERN PLATEAU																																		
							72.2	+1.7										46	0.22	−0.2										3.7			
Baker [3]	3,471	36	54	896.7	1,016.3	+2.1	67.0	+1.4	100	20	83	41	4	51	49	49	44	58	.46	−.1	.25	5	5.7	n.	20	nw.	30	15	14	2	3.8	.0	.0	7
Boise [1]	2,739	5	49	918.7	1,012.5	−1.0	74.8	+2.3	103	21	91	50	9	59	42	3	44	38	.04	−.2	.03	2	9.0	nw.	34	nw.	30	13	15	3	3.8	.0	.0	5
Pocatello [1]	4,478	5	31	864.5	1,014.2	+1.0	73.2	+3.0	100	21	90	45	19	56	46	1	41	38	.33	−.4	.14	5	9.5	s.	42	w.	27	14	13	4	4.3	.0	.0	9
Spokane [1]	1,929	27	42	947.2	1,014.9	+.3	69.4	+.4	99	21	85	45	16	54	42	13	46	50	.03	−.7	.03	1	7.2	ne.	29	w.	11	16	9	6	4.0	.0	.0	0
Walla Walla	991	57	65	979.3	1,014.6	−.3	75.1	+1.1	105	21	88	54	16	62	39	0	----	---	.22	−.2	.20	2	5.5	s.	17	sw.	8	19	9	3	3.3	.0	.0	1
Yakima	1,076	58	67	976.3	1,014.9	-----	73.9	+2.5	102	20	88	47	15	60	38	5	----	---	.24	−.1	.21	3	7.0	nw.	22	nw.	25	19	8	4	3.5	.0	.0	1
NORTH PACIFIC COAST																																		
							65.2	+1.3										68	1.26	+0.5										5.2			
North Head	211	5	56	1,011.5	1,019.0	+.4	58.8	+1.6	84	19	64	49	25	54	33	200	53	84	3.12	+2.2	1.66	12	12.8	n.	39	s.	8	4	12	15	7.0	.0	.0	0
Seattle [3]	125	90	321	1,013.9	1,018.6	+1.3	66.6	+1.1	90	20	76	53	4	58	27	22	52	66	.59	.0	.51	4	7.8	n.	24	sw.	31	11	10	10	4.8	.0	.0	0
Tacoma	194	172	201	1,011.5	1,018.3	+.3	64.6	+1.8	85	28	73	50	3	56	28	51	----	---	1.11	+.5	1.01	5	7.4	n.	22	n.	19	12	12	7	4.7	.0	.0	0
Tatoosh Island	86	9	61	1,016.3	1,019.3	+1.7	56.8	+1.7	72	20	62	49	3	52	18	253	52	86	2.88	+1.3	.95	15	9.8	w.	39	e.	20	6	6	19	7.0	.0	.0	1
Medford [1]	1,329	29	58	968.8	1,015.6	-----	72.3	−.4	115	20	89	47	15	56	51	9	48	51	.11	−.2	.10	2	----	nw.	---	-------	---	21	5	5	3.4	.0	.0	1
Portland, Oreg. [3]	154	68	106	1,015.9	1,018.0	+.4	68.8	+2.1	103	20	79	52	4	59	35	21	53	65	.98	+.4	.93	3	5.9	nw.	21	nw.	18	9	10	12	5.7	.0	.0	0
Roseburg	510	45	76	999.0	1,017.3	+.4	69.1	+1.7	109	20	83	47	16	55	44	20	51	59	.04	−.3	.04	1	4.8	n.	18	n.	21	15	9	7	4.2	.0	.0	0
MIDDLE PACIFIC COAST																																		
							69.0	+2.0										64	.90	0.0										3.5			
Eureka	60	72	88	1,016.9	1,019.3	+2.0	58.2	+2.7	66	26	63	50	19	54	15	208	53	85	.12	.0	.05	5	7.3	n.	21	nw.	4	5	11	15	6.5	.0	.0	1
Red Bluff	722	20	34	999.7	1,012.2	-----	82.2	+1.4	112	19	97	59	15	68	40	0	48	36	.19	+.2	19	2	8.1	se.	24	se.	12	24	4	3	2.4	.0	.0	1
Sacramento	66	92	115	1,010.5	1,012.9	+1.0	75.2	+2.0	104	18	91	54	14	59	39	0	53	55	T	.0	T	0	8.1	s.	19	sw.	13	29	1	1	1.1	.0	.0	0
San Francisco [3]	155	112	132	1,010.2	1,015.6	+1.7	60.4	+1.9	77	26	66	51	7	55	21	144	53	80	.06	.0	.06	1	11.2	w.	31	w.	2	16	9	6	4.2	.0	.0	0
SOUTH PACIFIC COAST																																		
							56.1	+1.5										61	.00	0.0										3.4			
Fresno [1]	327	5	35	1,000.3	1,011.5	+1.3	82.0	+.7	106	18	99	59	31	65	40	0	52	41	.02	.0	.02	1	7.8	nw.	19	nw.	13	23	5	3	2.2	.0	.0	0
Los Angeles	338	223	250	1,001.7	1,013.9	+1.4	71.8	+1.6	90	31	82	58	8	62	28	0	58	68	T	.0	T	0	5.6	w.	17	w.	25	20	9	2	3.1	.0	.0	0
San Diego [1]	87	20	55	1,010.8	1,013.9	+.7	70.8	+2.3	83	27	77	61	5	64	20	0	61	76	.00	.0	.00	0	6.6	nw.	16	nw.	14	9	15	7	4.9	.0	.0	0
WEST INDIES																																		
San Juan, P. R.	82	10	54	1,014.9	1,018.0	-----	79.6	−.5	86	11	83	72	30	76	11	0	74	80	3.97	−2.0	.66	14	13.3	e.	31	e.	8	8	19	7	5.4	.0	.0	3
PANAMA CANAL																																		
Balboa Heights	118	6	92	-------	[2]1,010.2	+1.1	81.9	+2.0	92	--	88	72	---	76	20	0	74	[3]86	7.44	+.4	----	16	6.3	nw.	24	n.	29	3	18	10	6.6	.0	.0	10
Cristobal	27	47	97	-------	[2]1,010.5	+.3	79.8	−1.0	86	7	84	72	24	77	12	0	----	[3]87	12.31	−1.4	3.36	20	8.8	ne.	24	w.	24	0	9	22	7.9	.0	.0	15
ALASKA																																		
Anchorage [1]	132	6	44	1,008.0	1,012.9	-----	58.4	+1.4	81	12	68	44	6	49	31	203	50	75	.97	−0.66	0.31	11	5.6	nw.	21	s	28	5	6	20	7.1	.0	.0	1
Fairbanks [1]	455	5	63	993.6	1,010.5	-----	61.7	+1.6	88	12	75	36	26	49	39	126	50	71	1.32	−0.5	.96	10	5.7	sw.	24	sw.	18	6	12	13	6.3	.0	.0	8
Juneau [1]	80	25	56	1,012.5	1,015.6	-----	54.3	------	74	13	62	40	23	47	29	330	48	78	6.61	-------	.28	22	8.0	n.	27	se.	23	1	3	27	8.5	.0	.0	0
Nome	22	25	56	1,010.2	1,010.8	-----	51.4	+1.5	71	9	57	35	4	45	21	418	48	89	2.29	−.21	.85	11	10.3	sw.	34	n.	31	4	7	20	7.4	0	0	0
HAWAII																																		
Honolulu	38	86	100	1,014.9	1,016.3	-----	77.9	+.2	87	21	82	71	9	73	14	0	----	---	1.07	−.1	.42	19	10.9	e.	29	ne.	10	2	26	3	5.4	.0	.0	1

[1] Data are airport records.
[2] Barometric data (adjusted to old city elevation) and hygrometric data from airport; otherwise city office records.
[3] Observations taken hihourly.
[4] Pressure (adjusted to old city elevation), temperature, and hygrometric data from airport; otherwise city office records.
[5] Temperature and precipitation from city records, other data from airport.

NOTE.—Except as indicated by notes [1], [2], [4], and [5] data in table are city office records.

SEVERE LOCAL STORMS FOR JULY 1946

[The table herewith contains such data as has been received concerning severe local storms that occurred during the month. A revised list of tornadoes will appear in the United States Meteorological Yearbook]

Place	Date	Time	Width of path, yards	Loss of life	Value of property destroyed	Character of storm	Remarks
	July 1946						
Laramie, Wyo.	1	2 p. m.		0		Tornado	Storm observed east-southeast of Laramie airport. Funnel failed to reach the ground; no damage reported.
Bennett, Colo., vicinity of	1	3 p. m.	100	0	$40,000	Tornadoes	Garage destroyed; another twisted off its foundation; roofs and houses damaged; steel grain bins lifted and twisted into worthless masses. Some farms struck, damaging combines, other machinery, and buildings.
Dundy County, Nebr.	2	6-6:30 p. m., M. S. T.	1 6		20,000	Heavy hail and wind.	Path of damaging hail about 4 miles long in county. Storm passed into Kansas as a severe hailstorm. Loss principally in wheat.
Musselshell County, Mont.	2	8 p. m.	1 1½		12,000	Hail	Loss in wheat and oats; path 5 miles long.
Stratton, Trenton, and Culbertson, Nebr., and vicinities.	2	8:30 p. m., M. S. T.	1 4½		500,000	do	Path of storm in Hitchcock County about 24 miles long. This county adjoins Dundy County where time of storm was apparently 2 hours earlier. Corn stripped, but surviving. Principal loss in wheat.
Wheeler to St. Francis, Kans., vicinities of.	2	9-10 p. m.	5-10		1,250,000	Heavy hail	Wheat, caught just before harvest, and other crops in the storm path practically wiped out. Some livestock killed. Additional damage in Dundy County, Nebr., from what appeared to be an accompaniment of this storm, estimated at $20,000. Path 30 miles long.
Golden Valley County, Mont.	3	4:30 p. m.	1 10		15,000	Hail	Loss in wheat and oats; windows cracked or broken; path 25 miles long.
Musselshell County, Mont.	3	5 p. m.	1 10		15,000	do	Loss in wheat and corn; path 30 miles long.
Myers, Mont., vicinity of	3	6:30-7 p. m.	1 1			Hail and wind	Total loss, from hail, in grain and beets on 7 farms; path 10 miles long.
Carpenter, Wyo.	4	4 p. m.		0		Tornado	No damage reported.
Cheyenne, Wyo.	4	4:15 p. m.		0		do	Funnel did not reach ground so no damage resulted. Apparently the same storm that was observed at Carpenter.
Langley, S. C.	4	P. m.	1 7		2,000,000	Electrical	Textile mill and stocks destroyed by fire, with loss probably more than estimate given.
Harahan, Metairie, Ridge, and New Orleans, La.	5	8:20-8:30 a. m.	100	0	25,000	Tornado	Miscellaneous property damage; little crop loss.
Wilmington to Manteo, N. C.	5-6	9 p. m. of 5th-p. m. of 6th.				Tropical disturbance.	High wind velocity of 42 miles per hour recorded at Hatteras, N. C., with gusts probably reaching 50-60 miles per hour in the area of Wrightsville and Carolina beaches. At Manteo, N. C., rainfall measured 7.84 inches, fell in less than 24 hours. This was the greatest 24-hour rainfall ever to have been recorded since the beginning of records at Manteo in 1905.
Hilliard, Fla.	6	P. m.		0		Small tornado	Occurred in a sparsely settled area and no damage of consequence reported.
Dawson County, Mont., southwestern portion.	7	5 p. m.			5,000	Hail	Loss in wheat and barley over path a mile long and less than a mile wide.
Fallon, Mont., and vicinity	7	5:50-6:35 p. m.	1 2		3,000	Hail, rain, and wind	1.05 inch of rainfall; wind 45 miles per hour; hail size of walnuts, 4 inches deep on highway; roofs damaged. Loss in wheat and beets; path 20 miles long.
Custer, Carter, and adjacent counties, Mont.	7		1 6		2,000	Hail	Loss in alfalfa and small grain.
Toole County, Mont.	7		1 2		25,000	do	Loss in wheat and mustard; path 5 miles long.
Del Norte, Monte Vista, Blanca, and Fort Garland, Colo.	8	2:45-5:30 p. m.	1 5		560,000	do	Loss in green peas, 50 percent, and potatoes, 25 percent. Much loss in lettuce, grains, and alfalfa in San Luis Valley. Buildings and roofs damaged, some extensively; neon signs and windows broken.
Shawnee and Osage Counties, Kans.	8	7 p. m.	1 2		15,000	Heavy hail and wind.	Loss chiefly in wheat; path 30 miles long.
Custer County, Mont.	8	P. m.	1 8		7,000	Hail	Loss in small grains; range damaged.
Lyndon,, Kans.	8		880		1,000	Heavy hail	Path 2 miles long; no details.
Montevideo, Minn.	9	5-9:30 a. m.	1 5		31,400	Thundersquall and hail.	Several small buildings at airport blown down; much loss in growing crops from hail; some loss in livestock and poultry.
Scotland Neck, N. C.	9	12:15-12 55 p. m.				Heavy rain	2.80 inches of rain fell in about 40 minutes. Number of business houses flooded, including a hosiery mill, where considerable machinery and materials were damaged. Furniture factory and church flooded. Much loss in crops, particularly corn and tobacco. Estimate of damage not given.
Custer County, Mont., northern portion.	9	P. m.	1 5		8,000	Hail	Loss in beets, alfalfa, and small grain; path 16 miles long.
Wilkes-Barre, Pa.	9	P. m.			60,000	Thunderstorm	Roller skating rink destroyed by fire.
Milwaukee, Wis.	9	P. m.			1,200	Electrical	Upper portion of home burned.
Scobey, Mont., vicinity of	9-10	12:50 p. m. on 9th-1 a. m. on 10th.	1 25		53,000	Rain, hail, high winds, and flood.	Most damage from flooding. Bridges washed out; basements flooded; crop loss, $50,000; path of hail 60 miles long.
Chouteau, Mont., western portion.	11	5 p. m.	1 1		1,000	Hail	Loss in wheat and barley; path 3 miles long.
Winnsboro, S. C.	11	P. m.			6,000	Thunderstorm	House burned, some trees blown down, and telephone service interrupted.
Bunker Hill, Va.	11	P. m.			800	Electrical	5 cows killed in open field.
Saratoga, N. C., and vicinity.	12	6:30 p. m.		4		do	Lightning struck a tree around which some young persons were standing, killing 4, injuring 4, and knocking down several. All electrical line transformers serving Wilson area out of commission.
Edgar, Mont., vicinity of	13	3:30 p. m.	15		1,500	Tornadic winds	Farm building damaged.
Kalispell, Mont.	13	4 p. m.	880-1,320		40,000	Hail	From 30 percent to total destruction to 6,000 acres of grain; loss in peas and gardens; path 6-7 miles long.
Birmingham, Ala.	13	6-8 p. m.				Thunderstorm and wind.	Winds up to 46 miles per hour recorded. Large and small trees blown down; lightning struck 2 streetcars; woman injured when a window in her house was shattered. Telephone and electric lines down; service discontinued 4 hours. Stadium wall undermined by heavy rains and partially blown down. Damage in thousands of dollars, not estimated.
Ravalli County, Mont.	13		2,200		8,000	Hail	Much loss in peas and beets; path 3½ miles long.
East Helena, Mont., vicinity of.	14	5:15-5:16 p. m.	50	0	2,000	Small tornado	Storm accompanied by blinding dust, with no funnel cloud visible; damage to 1 farmstead only.
Altavista, Va.	14	P. m.			2,200	Electrical	14 cows killed by lightning.
Bedford, Va., vicinity of	14	P. m.			1,000	do	8 cows killed by lightning.
Toole County, Mont., southern portion.	14		1 5		11,500	Hail	Loss in wheat; path 12 miles long.
Chouteau County, Mont., southern portion.	15	4 p. m.	1 2		3,000	do	Loss in wheat and barley; path 5 miles long.
Stanford, Mont., vicinity of	15	4:30 p. m.	1 5		7,500	do	Loss in grain and garden; effect spotty; path 10 miles long.
Fergus and Petroleum counties, Mont.	15	5 p. m.	1 2		30,000	Heavy hail	Much crop loss; damage to roofs and windows.
Daniels County, Mont.	15	6 p. m.	1 3		7,000	Hail	Loss in wheat and barley.
Fergus County, Mont., western portion.	15	6 p. m.	1 5		100,000	Heavy hail	Loss in grain; gardens damaged; some windows and shingles broken; path 12 miles long.
Custer County, Mont., northern portion.	15	P. m.	1 4		9,000	Hail	Loss in beets, grain, and alfalfa; rangeland damaged; path 24 miles long.

See footnotes at end of table.

SEVERE LOCAL STORMS FOR JULY 1946—Continued

Place	Date	Time	Width of path, yards	Loss of life	Value of property destroyed	Character of storm	Remarks
	July 1946						
Townsend, Mont., vicinity of.	15	P. m.			13,000	Hail	Much loss in grains and beets, small loss in pea crop; considerable building and property damage.
Stanford County, Mont., vicinity of	16	3:15 p. m.	[1] 5		75,000	do	Loss in grain and gardens spotty over area 10 miles long.
Fraser to Circle, Mont., and vicinities.	16	8:30–11 p. m.	[1] 20–30		1,400,000	Heavy hail and wind.	Almost total loss in crops; path 65 miles long.
Culbertson, Mont., and vicinity.	16–17	10:30 p. m.–2:30 a. m.	[1] 2½		151,000	Heavy hail and rain, electrical.	Principal loss in wheat; small property damage; basements flooded; some small bridges washed out. 2.80 inches of rain recorde; path 45 miles long.
Williams and McKenzie Counties, N. Dak.	16–17	11:12 p. m. of 16th–4:35 a. m. of 17th.			50,000	High winds, rain, and hail.	2.12 inches of rain recorded; 1.78 inches fell in 2 hours, the heaviest 2-hour rainfall of record. $25,000 loss in crops; $25,000 damage to airplanes and buildings. Hailstones measured 7¼ inches in circumference. Some small birds killed.
Custer County, Mont., southern portion.	17	Midnight	[1] 6		8,000	Hail	Loss in crops; damage to range; path 18 miles long.
Big Horn, Mont., northern portion.	17		[1] 2		150,000	do	Loss in grain, sugarbeets, and alfalfa; path 35 to 40 miles long.
Colstrip, Mont., vicinity of	17–18	9:15 p. m.–after midnight.	[1] 1		8,000	Hail and wind	Loss in small grain and gardens; path 30 miles long.
Denver, Colo.	18	3:50 p. m.			3,500	Electrical	Lightning made 20 reported strikes, injuring a woman and setting fire to several homes.
Columbia City, Ind., vicinity of.	18	4:30 p. m.	200		700	Wind	Damage on 1 farm; path southwest to northeast, 880 miles long.
Gainesville, Fla.	19	4–4:30 p. m.			21,500	Tornadic wind	Damage to main hangar, shops, and cottage at Stengel Air College, and some damage in city proper.
Montgomery County, Ala., northern portion.	19	P. m.			4,000	Wind and hail	Some trees and wires down.
New York State, northern portion.	19				100,000	Electrical	Communication and power lines disrupted; fires in many buildings in northern counties. Property damage in Jefferson County alone, $100,000.
Todd County, Minn.	20	3 p. m.	[1] 4		120,000	Thundersqualls and hail.	Power and communication lines disrupted; buildings damaged; trees uprooted; corn and grain lodged; 2 persons injured. Loss from thundersqualls, $10,000; from hail, $110,000.
Camp Hill, Pa.	20	P. m.			5,100	Thunderstorm	2 homes damaged by falling trees.
Davidsburg, Pa.	20	do			8,000	do	Barn burned and 300 chickens destroyed.
Middleburg, Pa.	20	do			8,500	do	Barn and contents struck by lightning and burned.
Barnstable County, Mass.	20–21	12 p. m.–4 a. m., E. S. T.			5,000	do	Utility wires damaged; in South Brewster, Mass., barn burned.
Hanover, Pa., vicinity of	21	A. m.			1,000	do	Barn damaged when struck by lightning.
Monsey, N. Y.	21	5:28–5:30 p. m.	500		102,000	Thunderstorm and hail.	Orchards damaged by hail; loss in apples and peaches, $50,000 loss in vegetables, $52,000; path 3½ miles long.
Admire, Pa.	21	P. m.			6,000	Thunderstorm	Barn burned.
Delta, Pa.	21	do			7,500	do	House burned when struck by lightning.
Gallia County, Ohio.	21					Heavy rain	Bridges washed out; loss in crops.
Riverside County, Calif.	21–23	6:30–8:30 p. m. of 21st to 7:30–10 p. m. P. S. T. of 23d.				Thunderstorm, heavy rains, and high wind.	Some damage to alfalfa seed cut and unthreshed; telephone and electric lines blown down. Few miles northwest of Blythe couple of houses unroofed. At Bresson Airport north of Blythe, 8 airplanes and hangar destroyed. Rail transportation delayed by washouts.
Houma, La.	22	2 p. m.	100	0	2,500	Tornado	Chief damage to buildings.
Crowley, La.	22	3:15 p. m.	100	0		do	Small damage reported.
Concord, N. H., vicinity of	23			1	60,000	Tornadic wind	Damage confined to relatively small area 586 yards northwest of Concord, N. H., Weather Bureau Office. Principal damage to National Guard Arsenal; 150-foot section of steel and brick building wiped out, destroying machinery and damaging army vehicles; estimated loss, $50,000. In addition 8 dwellings damaged and several small buildings completely destroyed. Boy killed by falling timbers when a barn collapsed.
Northfield, Minn., and vicinity.	23	4:30 a. m.			21,500	Thunderstorm and hail.	Considerable loss in growing crops and small grain in shocks; damage to real property.
Wayne County, N. Y., central and southeastern portions.	23	3–3:30 p. m.	[1] 1½–3		750,000	Hail	Loss in all crops; vegetables on extensive muckland and orchard fruits especially hard hit.
Haynesville, La.	24	3–4 p. m.			25,000	Hail, wind, and electrical.	Loss in growing crops, $10,000; damage to oil tank and contents, resulting from fire caused by lightning.
Mount Pleasant, Utah	24	4:15 p. m., M. S. T.			100,000	Heavy showers and flash flood	Main street filled with mud, debris, and boulders, some weighing several tons. Business houses flooded to depth of 4 feet, causing much damage to streets and buildings as well as heavy loss of merchandise. About 75 homes damaged in varying degrees. 200 acres of farm land inundated, devastating crops and gardens and causing small loss of livestock and poultry.
Franklin and Licking Counties, Ohio.	24	9 p. m.				Wind, electrical	Many trees blown down; barn and house destroyed by lightning near Columbus; 3 barns, about 12 miles northwest of Newark, destroyed by fire.
Lynchburg, Va.	25	4 p. m.				Thunderstorm and hail.	Office building struck by lightning; moderate damage to power lines; some damage from hail.
Hugo, Colo.	25	5:15 p. m.			50,000	Hail and heavy rain	Severe damage to roofs by hail; windows broken; railroad roadbed washed out; basements flooded, ruining stored goods.
Gaffney, S. C., vicinity of	25	9 p. m.	[1] 3		10,000	Hail and wind	35 percent loss, mostly in cotton and corn on about 12 farms; length of path, 3 miles.
Starkville and State College, Miss.	26	4:05 p. m.	1,760		500	Wind and hail	Small crop loss; damage to buildings.
Morland, Kans.	28	P. m.	440		1,500	Wind	Many trees blown down or lost large limbs; wires down; small buildings damaged.
Ashland, Wis.	28	A. m.			100,000	Electrical	Furniture and lumber plant with contents burned.
Cozad, Nebr.	28	4–6 p. m.	[1] 3		50,000	Hail and wind	Loss in corn and alfalfa; path 4 miles long.
Verdigre, Creighton, and Plainview, Nebr., vicinities of.	28	5–7:30 p. m., C. S. T.	[1] 2		31,800	Heavy hail and wind	Most damage southwest of Creighton, with principal loss in corn. Wind and rain caused loss in shocked oats and poultry of $1,500, included in estimate.
Boone and Nance Counties, Nebr.	28	5:30–6:30 p. m., C. S. T.	[1] 2–5		125,000	Hail and wind	Principal loss in growing corn; smaller loss in shocked wheat. person slightly injured by flying glass. Storm moved south. Considerable damage to buildings in Cedar Rapids. Length of path, 20 miles. Loss in livestock and poultry, $2,150, included in estimate.
Lyon County, Minn., western portion.	28	6:05 p. m.	[1] 2			Thunderstorm and hail.	Much loss to growing crops; path 2 miles long.
Frazer, Mont., vicinity of	28	9:30 p. m.	[1] 4		750	Hail and wind	Small loss in grain; path 8 miles long.
Beaver City, Nebr.	28		[1] 2		4,500	Electrical and hail	Granary damaged by fire; path 12 miles long.
Musselshell County, Mont., central portion.	29	7 p. m.	[1] 3		21,000	Hail and wind	Loss principally to wheat over a 10-mile path.
Haynesville, La.	29				10,000	Electrical	Damage confined to oil storage tank and contents, resulting from fire.

See footnotes at end of table.

SEVERE LOCAL STORMS FOR 1946—Continued

Place	Date	Time	Width of path, yards	Loss of life	Value of property destroyed	Character of storm	Remarks
	July 1946						
Cedarville to Fort Bidwell, Calif.	30	1-3 p. m.				High wind and rain	Storm started with drizzle and light wind. Suddenly the wind hit hard from the northwest with a twisting effect, breaking limbs from trees and strewing them in all directions, twisting and threshing gardens. Most loss to gardens, fruit trees, heavy vines, shade trees, grain, and hay. Everything received a severe whipping for 1½ hours. No damage from rain which lasted 15 to 20 minutes.
Musselshell County, Mont.	30	3 p. m.	[1] 1½		3,000	Hail	Loss in wheat; path 4 miles long.
Bitterroot Valley from Hamilton to Stevensville, Mont.	30	3-6 p. m.	2,640		250,000	Heavy hail and high wind.	Much loss in beet and potato crops. At Missoula airport peak gusts, 40-65 miles per hour for 5-minute periods, established a new July record maximum wind velocity.
Lake County, Ind.	30	3:15 p. m.	1,800			Hail and wind	Considerable loss in crops.
St. Petersburg, Fla.	30	7 p. m.			1,500	Tornadic wind	Frame house unroofed; garage demolished.
Carroll County, Ind.	30					Hail	Much loss in corn and beans.
Kosciusko County, Ind.	30					do	Heavy crop loss; not estimated.
Burleigh County, N. Dak.	31	8-8:30 p. m.	[1] 3		30,000	High wind	Shocked grain scattered; some loss in standing grain. Sheds, granaries, barns, and some windmills damaged or demolished. About 25 percent of loss in crops. Radio tower demolished.
Henderson, Colo.	31	P. m.		2	2,010	Electrical	House burned; 2 occupants died from burns.

[1] Miles instead of yards.

SOLAR RADIATION AND SUNSPOT DATA FOR JULY 1946

SOLAR RADIATION OBSERVATIONS

[Solar Radiation Investigations Section, I. F. HAND in Charge]

Explanations of the tables and references to descriptions of instruments, stations, and methods of observations and to summaries of data are given in the MONTHLY WEATHER REVIEW, volume 72, page 43, January 1944. A list of the pyrheliometric stations is given on page 45 of the same REVIEW.

Through the courtesy of Mr. Loyal B. Aldrich, Director of the Astrophysical Observatory, Smithsonian Institution, and Mr. Alfred F. Moore, Senior Director of Smithsonian field stations, values of solar radiation obtained at normal incidence at Table Mountain, Calif., will be included in Table 1, beginning with this issue. The coordinates of Table Mountain are: Latitude 34°22′ N., longitude 117°41′ W., elevation 7,500 feet, or 2,286 meters. Very few values will be obtained at this station at air masses larger than 2.0; however, owing to the exceptionally clear skies at Table Mountain, and to the large number of observations made at this station, these values should prove to be a valuable addition to those presently available.

Early in July 1946, an Eppley normal-incidence pyrheliometer and a Leeds and Northrup micromax potentiometer were installed at the Harvard University Coronagraph Station at Climax, Colo. Through the courtesy and cooperation of Dr. Donald H. Menzel and Dr. Walter Orr Roberts, the above Weather Bureau equipment will be kept in continuous operation, and the records will be reduced by the Weather Bureau Solar Radiation Investigations Section. The elevation of the Climax station is 11,520 feet, which is higher than that of any other station in this country where continuous records of this nature have been obtained. The latitude of the station is 39°22′ N., and the longitude, 106°11′ W.

TABLE 1.—*Solar radiation intensities during July 1946*

[Gram calories per minute per square centimeter of normal surface]

Date	Sun's zenith distance										
	7:30 a.m.	78.7°	75.7°	70.7°	60.0°	0.0°	60.0°	70.7°	75.7°	78.7°	1:30 p.m.
	75th mer. time	Air mass									75th mer. time
		A. M.				*1.0	P. M.				
	e.	5.0	4.0	3.0	2.0		2.0	3.0	4.0	5.0	e.
MADISON, WIS.											
	mb.	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*mb.*
July 1	13.2	0.71	0.84	0.99	1.14	1.35					12.7
July 2	14.2	.74	.79	.96	1.02	1.26					12.7
July 6	19.0	.42	.50	.64	.84	1.05					17.7
July 8	23.4	.32	.43	.55	.74	1.04					21.8
July 9	17.7	.32	.38	.42	.68	.97					25.2
July 10	24.2	.33	.44	.59							27.7
July 11	19.6	.73	.83	.95							17.0
July 12	16.5	.69	.80	.92	1.11	1.32					15.8
July 13	17.7	.66	.74	.83	1.03	1.20					15.8
July 20	17.0	.74	.81	.95	1.11	1.33					16.5
July 22	15.3	.59	.71	.83	.94	1.29					15.3
July 26	11.4	.76	.87	.98	1.15	1.29					10.6
July 27	12.7	.44	.52	.66	.81	1.13					12.7
July 29	18.3	.33	.45	.58	.77	1.06					19.6
July 31	15.8	.42	.54	.66	.83	1.10					18.3
Means		.55	.64	.77	.94	1.18					
Departures		−.08	−.10	−.10	−.10	−.10					

TABLE 1.—*Solar radiation intensities during July 1946*

[Gram calories per minute per square centimeter of normal surface]

Date	Sun's zenith distance										
	7:30 a.m.	78.7°	75.7°	70.7°	60.0°	0.0°	60.0°	70.7°	75.7°	78.7°	1:30 p.m.
	75th mer. time	Air mass									75th mer. time
		A. M.				*1.0	P. M.				
	e.	5.0	4.0	3.0	2.0		2.0	3.0	4.0	5.0	e.
LINCOLN, NEBR.											
July 9	23.4						0.92	0.75	0.62		25.0
July 11	14.6					1.25	1.14	.99			12.3
July 17	29.6					1.20	.92	.75	.62	0.50	28.6
July 22	20.4					1.31	1.03	.84			21.1
Means						1.25	1.00	.83	(.62)	(.50)	
Departures						−.08	−.06	−.05	−.13	−.16	
TABLE MOUNTAIN, CALIF.											
July 1					1.34						
July 2					1.34						
July 3						1.47					
July 4					1.39						
July 5					1.42						
July 6					1.33						
July 7					1.44						
July 8		1.11	1.20	1.30	1.42	1.55					
July 9					1.42						
July 10					1.27						
July 14					1.37						
July 15					1.37						
July 16					1.37						
July 25					1.30						
July 27					1.40						
July 29					1.22						
July 30					1.35						
July 31		1.09	1.18	1.28	1.39	1.52					
Means		(1.10)	(1.19)	(1.29)	1.36	1.51					
BLUE HILL, MASS.											
July 3	12.2				0.96		1.08	0.88			10.8
July 4	12.4				1.12						13.0
July 5	14.0	0.73	0.76	0.96	1.12		1.03	.80	0.70		14.2
July 7	22.1				.85			.81			16.4
July 13	14.7	.66	.80	.97	1.21	1.36	1.13				10.6
July 14	17.6	.57	.70	.83	1.05						17.3
July 15	11.4								.80	0.71	10.2
July 16	11.4	.91	1.01	1.13	1.27	1.48	1.21	1.08			9.7
July 17	9.4	.89	1.00	1.10	1.21	1.48	1.16	.96	.84		9.6
July 18	12.4	.76	.87	.95	1.09	1.41	1.02	.85			13.8
July 19	15.9				1.08	1.36					15.2
July 24	19.9					1.19		.60	.50	.39	22.8
July 26	12.8					1.41	1.11	.90	.80	.69	11.0
July 27	10.7				1.11			.80	.70	.55	13.0
July 28	13.5			1.00	1.19		1.05	.83	.75	.65	11.9
July 29	14.1	.63	.73	.85	.99	1.21	.71		.37	.31	15.0
Means		.74	.84	.97	1.10	1.36	1.06	.85	.68	.55	
Departures		+.11	+.12	+.10	+.06	+.08	+.05	+.02	−.01	−.08	
CLIMAX, COLO.											
July 15					1.14	1.25	1.40				
July 16					1.13	1.28	1.45				
July 17						1.26					
July 18						1.23					
July 20						1.28					
July 21					1.24	1.37	1.48	1.30	1.14	1.00	0.86
July 22					1.22	1.32		1.26	1.07	.95	.84
July 23						1.26	1.43				
July 24					1.14	1.28					
July 25						1.25	1.17	1.16		.94	.84
July 26							1.43	1.14			
July 27						1.20					
July 28							1.46				
July 29						1.28	1.46				
July 30						1.28					
Means					1.17	1.27	1.41	1.22	(1.10)	.96	.84

TABLE 2.—*Daily totals and weekly means of solar radiation (direct+diffuse) received on a horizontal surface*

[Gram calories per square centimeter]

Date	Washington, D. C.	Madison, Wis.	Lincoln, Nebr.	East Lansing, Mich.	New York, N. Y.	Fresno, Calif.	Fairbanks, Alaska	Columbia, Mo.	Boston, Mass.	Nashville, Tenn.	La Jolla, Calif.	Riverside, Calif.	Blue Hill, Mass.	Newport, R. I.	State College, Pa.	Put-in-Bay, Ohio	Boulder, Colo.	Davis, Calif.	Tooele, Utah	New Orleans, La.	Toronto, Canada
1946	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*
July 2	285	698	634	684	493	712	305	663	452	420	335	655	359	230	812	775	633	724	800	537	732
July 3	686	655	341	661	591	720	311	786	706	424	525	666	736	389	796	784	484	727	672	524	687
July 4	689	718	405	680	527	705	257	783	681	112	584	625	737	621	670	758	590	697	674	418	697
July 5	484	681	419	591	513	687	277	711	678	223	680	531	662	724	642	678	445	718	538	393	640
July 6	454	580	350	593	339	691	526	689	518	549	582	598	478	407	454	636	636	740	660	358	584
July 7	459	419	639	564	634	701	520	598	625	586	620	704	669	609	693	641	553	663	768	618	703
July 8	590	631	631	518	494	683	613	605	721	414	665	707	710	710	515	459	531	698	785	375	428
Means	521	626	488	613	513	700	401	691	626	390	570	641	621	527	654	676	553	709	700	461	639
Departures	+7	+75	−99	+104	+6	+5	−76	+77	+123	−109	+12	+31	+63	−29	+128	+84	−2	+4	−13	+33	.....
July 9	210	495	739	458	283	696	645	560	172	474	643	696	184	221	496	654	785	725	810	279	700
July 10	607	564	454	471	318	665	611	710	265	572	647	614	335	318	415	603	743	710	806	603	653
July 11	514	505	785	445	48	670	593	656	299	524	548	616	408	475	570	473	526	788	284	296	425
July 12	259	723	729	621	114	673	602	786	502	585	578	625	538	330	475	741	430	736	680	505	617
July 13	728	697	740	647	636	692	574	761	645	621	677	637	721	752	732	706	324	762	710	416	666
July 14	636	153	734	357	559	712	517	604	632	530	660	692	657	706	600	586	522	622	732	262	422
July 15	361	609	146	670	184	697	523	615	515	480	676	670	506	246	610	676	554	706	792	.....	715
Means	474	535	618	524	306	686	581	670	433	541	633	650	478	435	557	634	555	714	688	394	604
Departures	−26	−15	+29	+33	−178	−2	+89	+54	−47	+42	+33	+60	−33	−82	−9	+69	+20	+28	−4	−29	.....
July 16	686	397	189	643	656	678	325	234	722	553	656	611	761	711	736	761	570	716	784	655	668
July 17	732	237	706	606	607	674	603	538	673	420	427	580	746	741	713	740	361	709	569	483	636
July 18	694	462	696	430	560	633	455	709	593	403	326	374	705	705	620	417	405	684	783	544	617
July 19	620	533	306	537	437	430	106	666	570	586	345	394	650	620	517	515	390	600	788	526	461
July 20	480	713	745	520	349	542	344	539	425	526	321	547	502	532	281	308	691	700	760	468	463
July 21	565	704	743	456	491	591	520	703	54	291	421	661	122	257	322	471	731	625	756	552	373
July 22	226	661	736	549	157	614	547	725	129	487	470	440	198	170	231	518	519	658	738	252	353
Means	572	530	589	534	465	595	414	588	452	467	424	515	526	533	486	533	524	670	739	497	510
Departures	+86	−4	+15	+41	−3	−82	−15	−5	+15	−38	−128	−57	+31	+41	−19	−19	+8	+1	+55	+71	.....
July 23	350	406	586	579	45	576	581	717	297	638	387	402	321	431	462	670	490	659	557	473	567
July 24	653	202	389	348	280	532	479	683	552	611	231	229	598	514	545	500	453	635	489	568	242
July 25	368	647	588	420	247	499	323	563	371	466	377	610	348	132	524	318	544	156	740	618	549
July 26	736	686	560	632	630	715	455	556	528	596	633	660	568	593	715	699	516	621	620	356	671
July 27	692	533	657	619	643	722	500	298	477	515	636	659	515	599	597	670	368	662	750	571	628
July 28	618	622	619	559	576	722	213	377	580	500	485	440	682	690	649	641	612	649	749	566	602
July 29	700	571	654	497	515	744	394	663	540	385	585	618	618	644	571	639	610	661	553	490	430
Means	588	524	579	522	419	644	421	551	478	531	476	517	521	515	581	591	513	578	637	544	530
Departures	+98	+8	+29	+43	−24	−15	+10	−5	+48	+55	−30	−29	+65	+35	+103	+48	+7	−75	−10	+120	.....

ACCUMULATED Ddepartures ON JULY 29, 1946

	+1,113	+2,422	−1,197	+2,450	−6,895	+2,730	.....	.....	+1,785	−243	.....	−1,631	+665	+385	+1,295	.....	+3,045	+9,254	−2,408	.....	.....

POSITIONS, AREAS, AND COUNTS OF SUNSPOTS FOR JULY 1946

By LUCY T. DAY

[Equatorial Division, U. S. Naval Observatory]

[Communicated by the Superintendent, U. S. Naval Observatory.] All measurements and spot counts were made at the Naval Observatory from plates taken at the observatories indicated. Difference in longitude is measured from the central meridian, positive toward the west. Latitude is positive towards the north. Areas are corrected for foreshortening and expressed in millionths of Sun's hemisphere. For each day under Mount Wilson group number, longitude, latitude, area of spot or group, and spot count, are included respectively: number of groups, assumed longitude of center of the disk, assumed latitude of center of the disk, total areas of spots and groups, and total spot count.

Date	Eastern standard time	Mount Wilson group No.	Heliographic: Difference in longitude	Heliographic: Longitude	Heliographic: Latitude	Heliographic: Distance from center of disk	Area of spot or group	Spot count	Plate quality	Observatory
1946	h m		°	°	°	°				
July 1	12 50	8113	−85	84	+21	85	12	1	G	U. S. Naval.
		8111	−80	89	−29	82	194	1		
		8109	−79	90	−19	79	145	1		
		8112	−76	93	+14	76	48	1		
		8111	−73	96	−27	77	145	5		
		8110	−72	97	+18	72	121	3		
		8109	−71	98	−18	74	12	1		
		8109	−67	102	−17	70	145	1		
		8106	−53	116	+23	55	388	1		
		8105	−38	131	+29	44	97	1		
		8101	+20	189	−29	37	24	12		
		8101	+29	198	−29	42	24	7		
		8103	+53	222	+21	55	6	2		
		8095	+68	237	−22	70	12	2		
		8098	+68	237	−17	70	6	1		
		(11)		(169)	(+3)		1,379	40		
2	15 18	8113	−68	87	+23	69	6	1	G	Do.
		8111	−63	92	−29	68	339	10		
		8109	−62	93	−19	65	48	4		
		8112	−60	95	+15	61	12	1		
		8111	−59	96	−26	64	412	10		
		8110	−57	98	+18	59	121	8		
		8109	−53	102	−17	57	109	1		
		8110	−52	103	+18	53	12	1		
		8106	−41	114	+21	43	12	1		
		8106	−39	116	+22	41	485	2		
		8105	−22	133	+28	33	73	1		
		8101	+45	200	−30	55	12	1		
		8095	+80	235	−20	80	12	1		
		8098	+82	237	−18	82	6	1		
		(10)		(155)	(+3)		1,659	43		
3	11 11	8111	−52	92	−28	59	339	6	VG	Do.
		8109	−51	93	−18	55	6	2		
		8112	−50	94	+15	51	12	1		
		8111	−49	95	−25	55	97	13		
		8109	−49	95	−18	53	24	2		
		8109	−47	97	−18	52	12	1		
		8110	−47	97	+18	49	97	12		
		8111	−44	100	−26	51	145	2		
		8110	−42	102	+18	43	48	8		
		8109	−41	103	−17	46	97	1		
		8106	−31	113	+21	35	61	6		
		8106	−29	115	+21	33	485	1		
		8106	−29	115	+23	34	12	9		
		8105	−12	132	+28	27	61	1		
		8101	+55	199	−30	63	12	1		
		(7)		(144)	(+3)		1,508	66		
4	10 9	8111	−40	91	−29	50	291	7	F	Do.
		8109	−40	91	−19	44	6	1		
		8112	−38	93	+14	40	6	1		
		8109	−37	94	−19	43	73	10		
		8111	−36	95	−25	45	97	4		
		8110	−34	97	+18	35	48	4		
		8109	−32	99	−19	37	48	5		
		8111	−31	100	−27	42	73	2		
		8110	−29	102	+18	31	24	2		
		8109	−29	102	−18	35	61	1		
		8106	−19	112	+21	25	48	4		
		8106	−17	114	+21	25	485	1		
		8105	+1	132	+28	27	48	1		
		(6)		(131)	(+3)		1,308	43		
5	10 38	8111	−27	90	−29	40	436	10	G	Do.
		8112	−24	93	+14	26	6	1		
		8111	−23	94	−26	38	194	10		
		8109	−23	94	−19	32	97	12		
		8110	−20	97	+17	25	12	1		
		8109	−18	99	−19	28	48	13		
		8111	−17	100	−27	35	109	5		
		8110	−17	100	+18	22	48	6		
		8109	−15	102	−18	26	61	1		
		8106	−6	111	+21	18	36	7		
		8106	−3	114	+21	18	485	1		
		8106	−2	115	+22	19	48	8		
		8105	+15	132	+28	30	48	1		
		8114	+47	164	+17	49	24	9		
		(7)		(117)	(+3)		1,652	85		

See footnotes at end of table.

713191—46——2

POSITIONS, AREAS, AND COUNTS OF SUNSPOTS FOR JULY 1946—Continued

Date	Eastern standard time	Mount Wilson group No.	Heliographic: Difference in longitude	Heliographic: Longitude	Heliographic: Latitude	Heliographic: Distance from center of disk	Area of spot or group	Spot count	Plate quality	Observatory
1946	h m		°	°	°	°				
July 6	9 12	8111	−15	90	−27	33	388	14	F	Mt. Wilson.
		8111	−10	95	−25	30	194	21		
		8109	−10	95	−18	23	73	7		
		8112	−10	95	+15	15	6	1		
		8110	−7	98	+18	17	12	5		
		8111	−5	100	−25	28	145	12		
		8109	−5	100	−18	22	48	9		
		8110	−5	100	+20	17	61	4		
		8110	−3	102	+18	15	48	15		
		8109	−3	102	−17	20	73	1		
		8106	+9	114	+24	22	24	12		
		8106	+10	115	+23	22	485	1		
		8105	+15	120	+27	29	36	10		
		8105	+28	133	+29	37	12	3		
		8114	+65	170	+19	66	73	9		
		(7)		(105)	(+3)		1,678	124		
7	13 27	8111	−6	83	−34	38	12	1	G	U. S. Naval.
		8115	−1	88	+9	5	6	1		
		8111	0	89	−29	33	170	9		
		(*)	+2	91	+27	24	6	1		
		8111	+5	94	−25	29	145	10		
		8109	+5	94	−18	22	36	2		
		8109	+8	97	−19	24	61	2		
		8112	+8	97	+13	12	6	2		
		8110	+9	98	+21	19	61	6		
		8111	+11	100	−26	31	61	7		
		8109	+13	102	−17	26	48	1		
		8110	+13	102	+19	20	48	10		
		8106	+25	114	+22	30	339	5		
		8105	+42	131	+29	47	24	6		
		8116	+55	144	+22	57	12	3		
		8114	+76	165	+18	76	97	1		
		8114	+80	169	+17	80	97	1		
		(10)		(89)	(+4)		1,229	68		
8	11 0	8117	−79	359	−13	80	24	2	G	Do.
		8117	−71	7	−12	72	6	1		
		8111	+11	89	−29	34	315	12		
		8111	+18	96	−26	35	242	15		
		8109	+18	96	−18	28	24	5		
		8112	+20	98	+15	23	12	2		
		8109	+21	99	−19	31	48	13		
		8110	+21	99	+21	27	61	4		
		8111	+23	101	−26	38	48	15		
		8109	+25	103	−18	32	61	2		
		8106	+38	116	+22	41	388	10		
		8105	+55	133	+30	58	6	1		
		8116	+69	147	+21	69	48	7		
		(8)		(78)	(+4)		1,283	89		
9	8 46	8117	−65	1	−13	67	97	6	F	Mt. Wilson.
		8111	+23	89	−27	38	194	10		
		8109	+29	95	−17	36	24	2		
		8111	+30	96	−25	41	145	17		
		8110	+33	99	+22	36	36	1		
		8109	+37	103	−17	42	48	1		
		8111	+37	103	−25	47	24	6		
		8106	+47	113	+24	50	24	1		
		8106	+48	114	+23	51	97	6		
		8106	+51	117	+23	53	145	3		
		8116	+81	147	+22	81	48	1		
		(6)		(66)	(+4)		882	54		
10	10 47	8118	−75	336	−20	77	24	3	F	U. S. Naval.
		8117	−55	356	−10	57	24	3		
		8117	−48	3	−11	51	97	7		
		(*)	+20	71	−10	25	12	4		
		8111	+39	90	−29	50	97	6		
		8111	+43	94	−28	52	73	4		
		8111	+45	96	−25	53	12	1		
		8110	+48	99	+20	50	24	1		
		8109	+51	102	−19	56	48	1		
		8106	+61	112	+22	61	97	2		
		8106	+65	116	+21	65	121	1		
		(7)		(51)	(+4)		629	33		
11	12 56	8118	−64	333	−21	67	194	2	G	Do.
		8118	−61	336	−20	65	61	2		
		8117	−39	358	−11	42	48	9		
		8117	−34	3	−12	36	73	8		
		8119	−33	4	+19	36	24	3		
		8111	+50	87	−30	58	109	6		
		8111	+57	94	−29	64	97	2		
		8109	+68	105	−19	70	12	1		
		8110	+69	106	+17	69	48	1		
		8106	+76	113	+21	76	97	1		
		8106	+80	117	+20	80	121	2		
		(7)		(37)	(+4)		884	37		

POSITIONS, AREAS, AND COUNTS OF SUNSPOTS FOR JULY 1946—Continued

Date	Eastern standard time	Mount Wilson group No.	Heliographic: Difference in longitude	Heliographic: Longitude	Heliographic: Latitude	Heliographic: Distance from center of disk	Area of spot or group	Spot count	Plate quality	Observatory
1946	h m		°	°	°	°				
July 12	8 37	8121	−80	307	+22	80	339	1	G	Mt. Wilson.
		8120	−62	325	−18	65	12	1		
		8118	−51	336	−20	56	194	5		
		8118	−49	338	−19	53	121	7		
		8117	−26	1	−11	30	48	9		
		8119	−24	3	+18	27	24	7		
		8117	−22	5	−12	26	73	15		
		8119	−20	7	+18	24	48	6		
		8111	+65	92	−29	70	194	9		
		8111	+71	98	−28	76	97	7		
		8109	+83	110	−19	83	12	1		
		(7)		(27)	(+4)		1,162	68		
13	11 6	8121	−69	302	+22	70	339	2	G	U. S. Naval.
		8118	−39	332	−20	44	145	11		
		8118	−35	336	−19	42	170	8		
		8117	−12	359	−12	19	61	7		
		8119	−11	0	+18	18	61	3		
		8117	−10	1	−12	18	48	4		
		8117	−7	4	−11	17	16	2		
		8119	−7	4	+17	15	12	6		
		8119	−3	8	+17	15	24	3		
		8111	+78	89	−30	80	194	2		
		(5)		(11)	(+4)		1,070	48		
14	11 11	8121	−56	302	+22	58	339	1	F	Do.
		8122	−53	305	−17	56	24	7		
		8120	−39	319	−20	45	48	10		
		8118	−26	332	−21	36	170	13		
		8118	−23	335	−20	33	145	11		
		8117	+1	359	−12	15	121	9		
		8119	+3	1	+17	14	24	4		
		8119	+10	8	+16	16	48	11		
		(6)		(358)	(+4)		919	66		
15	11 10	8121	−42	303	+22	45	339	1	F	Do.
		8122	−39	306	−15	43	16	5		
		8122	−35	310	−16	40	24	3		
		8120	−27	318	−21	37	12	2		
		8118	−12	333	−21	28	121	8		
		8118	−6	339	−20	25	121	6		
		8117	+15	0	−14	22	24	7		
		8110	+18	3	+17	23	24	3		
		8119	+23	8	+18	27	24	4		
		8119	+26	11	+17	29	145	5		
		(6)		(345)	(+4)		850	44		
16	10 43	8124	−85	247	−24	85	97	3	VG	Do.
		8125	−83	249	+26	83	48	1		
		8121	−31	301	+22	35	12	6		
		8121	−29	303	+22	32	339	1		
		8122	−27	305	−15	32	73	16		
		8122	−22	310	−16	28	73	8		
		8123	−17	315	+24	26	48	1		
		8123	−16	316	+23	25	12	7		
		8120	−13	319	−21	28	12	2		
		8118	+3	335	−20	23	48	9		
		8118	+7	339	−19	24	97	11		
		8117	+28	0	−11	32	6	3		
		8119	+35	7	+17	37	48	18		
		8119	+40	12	+17	42	170	1		
		(9)		(332)	(+4)		1,083	87		
17	11 3	8125	−70	248	+26	71	24	1	G	Do.
		8124	−69	249	−24	71	48	1		
		8124	−65	253	−23	70	73	3		
		8121	−17	301	+21	24	364	1		
		8122	−13	305	−16	23	145	27		
		8122	−7	311	−17	24	242	3		
		8123	−4	314	+24	20	48	2		
		8123	−1	317	+23	19	12	7		
		8120	0	318	−20	25	12	6		
		8118	+15	333	−21	29	12	3		
		8118	+21	339	−20	32	36	5		
		8126	+45	3	−37	59	12	3		
		8119	+47	5	+17	49	121	12		
		8119	+54	12	+17	56	242	16		
		(9)		(318)	(+5)		1,391	90		
18	9 22	8128	−80	226	+15	80	24	1	G	Mt. Wilson.
		8125	−58	248	+26	59	12	1		
		8124	−57	249	−24	61	24	5		
		8124	−52	254	−23	57	48	6		
		8121	−9	297	+23	21	24	15		
		8121	−3	303	+22	18	388	1		
		8122	+1	307	−16	21	194	42		
		8122	+8	314	−16	23	339	5		

POSITIONS, AREAS, AND COUNTS OF SUNSPOTS FOR JULY 1946—Continued

Date	Eastern standard time	Mount Wilson group No.	Heliographic: Difference in longitude	Heliographic: Longitude	Heliographic: Latitude	Heliographic: Distance from center of disk	Area of spot or group	Spot count	Plate quality	Observatory
1946	h m		°	°	°	°				
July 18	9 22	8123	+10	316	+24	22	97	30	G	Mt. Wilson.
		8118	+27	333	−21	37	12	3		
		8118	+34	340	−19	41	24	7		
		8117	+36	2	−11	58	12	1		
		8127	+57	3	−19	60	24	7		
		8126	+58	4	−38	67	61	1		
		8127	+60	6	−18	63	36	3		
		8119	+63	9	+18	63	170	14		
		8119	+70	16	+18	71	291	1		
		(11)		(306)	(+5)		1,780	143		
19	11 23	8129	−88	204	+20	88	388	1	G	U. S. Naval.
		8128	−67	225	+15	67	24	1		
		8124	−44	248	−23	51	48	1		
		8124	−43	249	−24	51	24	2		
		8121	−3	289	+20	16	6	1		
		8121	+10	302	+21	19	339	1		
		8122	+10	302	−14	21	121	1		
		8122	+13	305	−17	24	97	13		
		8122	+21	313	−17	30	291	3		
		8123	+22	314	+24	28	97	9		
		8123	+25	317	+22	30	61	8		
		8118	+40	332	−20	47	12	1		
		8118	+50	342	−20	55	12	1		
		8126	+70	2	−40	78	24	1		
		8127	+71	3	−19	74	48	4		
		8119	+74	6	+16	74	194	6		
		8127	+77	9	−21	78	194	1		
		8119	+84	16	+16	84	291	1		
		(10)		(292)	(+5)		2,271	56		
20	10 31	8129	−85	194	+19	85	582	1	F	Do.
		8129	−85	194	+23	85	388	2		
		8129	−80	199	+20	80	194	1		
		8129	−79	200	+22	79	291	1		
		8129	−75	204	+20	75	388	1		
		8128	−55	224	+15	57	24	2		
		8124	−31	248	−23	41	24	3		
		8124	−29	250	−24	41	12	1		
		8121	+20	299	+22	26	6	1		
		8121	+23	302	+21	27	388	1		
		8122	+24	303	−15	30	97	4		
		8122	+27	306	−17	34	73	7		
		8122	+33	312	−17	40	267	9		
		8123	+33	312	+24	37	97	7		
		8123	+37	316	+22	40	73	5		
		8118	+64	343	−19	67	12	3		
		(7)		(279)	(+5)		2,916	49		
21	10 24	8129	−73	193	+23	73	485	3	F	Do.
		8129	−69	197	+19	69	970	2		
		8129	−68	198	+23	69	582	1		
		8133	−68	198	−19	70	73	5		
		8129	−64	202	+19	64	388	8		
		8129	−64	202	+23	65	339	5		
		8129	−61	205	+21	61	339	1		
		8128	−42	224	+17	44	12	3		
		8132	−38	228	+22	41	12	3		
		8124	−18	248	−23	33	36	8		
		8124	−15	251	−23	31	12	1		
		8130	+17	283	+13	20	48	10		
		8121	+33	299	+22	36	24	4		
		8121	+36	302	+21	37	364	1		
		8122	+38	304	−15	43	97	7		
		8131	+43	309	−20	49	6	3		
		8122	+45	311	−16	50	48	4		
		8123	+45	311	+25	48	97	4		
		8122	+48	314	−17	53	339	1		
		8123	+50	316	+22	52	48	4		
		(10)		(286)	(+5)		4,319	78		
22	11 50	8129	−61	191	+23	62	679	5	G	Do.
		8129	−57	195	+23	59	582	3		
		8133	−57	195	−19	61	73	7		
		8129	−56	196	+19	57	1,503	18		
		8133	−50	202	−19	54	170	1		
		8129	−49	203	+23	51	339	14		
		8129	−47	205	+21	50	315	1		
		8128	−29	223	+12	21	12	6		
		8132	−25	227	+21	29	24	5		
		8124	−1	251	−20	25	6	2		
		8130	+32	284	+13	33	48	3		
		8121	+47	299	+22	50	24	1		
		8121	+50	302	+21	52	364	1		
		8122	+53	305	−17	57	97	13		
		8131	+57	309	−20	61	97	5		
		8123	+59	311	+25	60	73	4		
		8122	+61	313	−17	64	388	1		
		8123	+62	314	+23	63	97	1		
		(10)		(252)	(+5)		4,891	91		

See footnotes at end of table.

POSITIONS, AREAS, AND COUNTS OF SUNSPOTS FOR JULY 1946—Continued

Date	Eastern standard time	Mount Wilson group No.	Heliographic: Difference in longitude	Heliographic: Longitude	Heliographic: Latitude	Heliographic: Distance from center of disk	Area of spot or group	Spot count	Plate quality	Observatory
1946	h m		°	°	°	°				
July 23	12 1	8129	−47	191	+23	50	679	5	G	U. S. Naval.
		8129	−43	195	+23	45	533	1		
		8129	−43	195	+19	45	1,309	9		
		8133	−42	196	−19	47	24	5		
		8133	−37	201	−19	44	121	1		
		8129	−37	201	+23	40	388	5		
		8129	−35	203	+20	37	533	6		
		8129	−31	207	+22	34	73	1		
		8132	−13	225	+20	20	12	2		
		8130	+44	282	+14	45	24	1		
		8121	+60	298	+23	60	48	1		
		8121	+61	299	+20	61	48	1		
		8121	+61	299	+21	61	339	3		
		8131	+70	308	−22	72	48	3		
		8123	+70	308	+25	71	242	3		
		8123	+75	313	+23	76	97	1		
		8122	+78	316	−17	80	388	1		
		8131	+80	318	−20	80	194	1		
		(8)		(238)	(+5)		5,100	50		
24	11 0	8129	−35	191	+23	38	679	4	G	Do.
		8129	−32	194	+20	35	1,018	7		
		8129	−30	196	+23	34	533	1		
		8133	−29	197	−18	37	48	9		
		8129	−28	198	+19	31	242	9		
		8129	−27	199	+23	31	533	6		
		8133	−26	200	−18	35	48	1		
		8133	−24	202	−18	34	145	1		
		8129	−23	203	+20	27	582	6		
		8129	−19	207	+21	25	97	5		
		8128	−1	225	+15	10	12	3		
		8121	+75	301	+21	76	291	1		
		8121	+75	301	+20	75	48	2		
		(4)		(226)	(+5)		4,276	55		
25	10 3	8129	−23	190	+23	28	679	7	G	Mt. Wilson.
		8129	−19	194	+20	24	970	15		
		8129	−18	195	+23	25	533	2		
		8129	−16	197	+21	23	533	13		
		8133	−15	198	−19	28	24	12		
		8129	−12	201	+21	20	485	21		
		8129	−10	203	+20	18	267	1		
		8133	−10	203	−18	25	145	2		
		8129	−7	206	+22	18	218	17		
		8128	+11	224	+17	17	24	4		
		8121	+87	300	+22	87	194	1		
		(4)		(213)	(+5)		4,072	95		
26	10 48	8135	−80	119	−26	82	388	1	VG	U. S. Naval.
		8134	−50	149	+11	50	24	11		
		8134	−49	150	+12	50	36	1		
		8129	−9	190	+23	21	533	12		
		8129	−6	193	+21	17	1,551	18		
		8133	−3	196	−19	24	6	2		
		8129	0	199	+21	16	921	27		
		8133	+3	202	−18	24	97	7		
		8129	+4	203	+20	16	242	1		
		8129	+5	204	+23	20	242	18		
		8128	+22	221	+13	23	24	12		
		8132	+29	228	+21	33	6	1		
		(6)		(199)	(+5)		4,070	111		
27	10 36	8136	−74	112	+11	74	145	3	G	Do.
		8135	−72	114	−24	75	194	3		
		8135	−64	122	−24	68	533	6		
		8134	−38	148	+12	38	61	14		
		8134	−33	153	+12	34	73	8		
		8129	+3	189	+23	19	485	13		
		8129	+5	191	+19	15	436	16		
		8129	+6	192	+23	19	727	6		
		8129	+8	194	+20	17	533	7		
		8133	+12	198	−18	27	12	9		
		8129	+13	199	+23	22	921	28		
		8133	+15	201	−18	28	12	9		
		8129	+18	204	+20	23	194	16		
		8128	+34	220	+14	36	61	11		
		8132	+40	226	+21	42	12	2		
		(7)		(186)	(+5)		4,399	151		
28	11 44	8137	−80	92	−30	82	485	2	VG	Do.
		8137	−70	102	−29	75	242	3		
		8137	−69	103	−28	72	97	1		
		8136	−64	108	+10	64	145	15		
		8135	−60	112	−26	65	170	1		
		8136	−59	113	+9	59	291	1		
		8135	−52	120	−26	58	485	1		

POSITIONS, AREAS, AND COUNTS OF SUNSPOTS FOR JULY 1946—Continued

Date	Eastern standard time	Mount Wilson group No.	Heliographic: Difference in longitude	Heliographic: Longitude	Heliographic: Latitude	Heliographic: Distance from center of disk	Area of spot or group	Spot count	Plate quality	Observatory
1946	h m		°	°	°	°				
July 28	11 44	8134	−25	147	+11	26	121	21	VG	U. S. Naval.
		8134	−24	148	+9	25	6	2		
		8129	+17	189	+23	24	485	9		
		8129	+21	193	+20	27	1,454	19		
		8129	+26	198	+21	30	776	16		
		8133	+28	200	−18	37	48	3		
		8129	+30	202	+19	32	206	1		
		8129	+32	204	+21	35	339	16		
		8128	+48	220	+14	49	12	2		
		(7)		(172)	(+5)		5,362	113		
29	11 10	8139	−72	88	−26	78	24	2	G	Do.
		8137	−69	91	−27	74	97	3		
		8137	−65	95	−30	72	485	5		
		(*)	−61	99	−17	66	12	1		
		8137	−56	104	−27	65	436	10		
		8136	−56	104	+11	56	267	3		
		8136	−50	110	+11	50	121	17		
		8135	−46	114	−30	58	24	5		
		8135	−46	114	−26	57	145	6		
		8136	−45	115	+9	45	291	2		
		8135	−39	121	−26	51	485	4		
		8138	−37	123	+19	39	12	1		
		8134	−19	141	+13	21	97	18		
		8134	−18	142	+13	20	24	1		
		8129	+30	190	+23	34	436	5		
		8129	+34	194	+21	36	1,406	16		
		8129	+40	200	+21	42	630	15		
		8129	+42	202	+20	43	194	1		
		8133	+42	202	−17	48	36	2		
		8129	+44	204	+23	46	388	14		
		(9)		(160)	(+6)		5,610	131		
30	11 8	8139	−58	88	−27	66	24	5	VG	Do.
		8137	−52	94	−30	62	48	5		
		8137	−48	98	−29	59	158	7		
		(*)	−47	99	−18	53	12	1		
		8136	−42	104	+11	42	315	15		
		8137	−41	105	−28	53	339	6		
		8136	−36	110	+10	36	48	10		
		8137	−33	113	−26	46	145	2		
		8137	−32	114	−30	48	12	5		
		8136	−32	114	+9	32	388	8		
		8135	−29	117	−26	44	97	7		
		8135	−26	120	−26	41	485	1		
		8140	−24	122	+19	27	24	2		
		8138	−5	141	+14	11	12	4		
		8134	+4	150	+14	10	194	31		
		8129	+41	187	+23	43	291	6		
		8129	+47	193	+23	50	630	3		
		8129	+50	196	+20	51	582	13		
		8129	+53	199	+23	55	533	5		
		8129	+56	202	+20	58	194	1		
		8133	+56	202	−17	61	12	2		
		8129	+60	206	+22	61	582	10		
		(10)		(146)	(+6)		5,125	149		
31	10 58	8139	−45	88	−25	55	12	3	G	Do.
		8137	−40	93	−26	52	145	7		
		8137	−39	94	−29	52	291	9		
		8137	−35	98	−26	47	194	17		
		8137	−29	104	−25	43	73	3		
		8136	−28	105	+10	29	388	11		
		8137	−27	106	−26	43	267	4		
		8136	−23	110	+10	24	24	5		
		8135	−20	113	−25	37	145	2		
		8136	−17	116	+9	18	436	11		
		8135	−15	118	−24	34	48	7		
		8135	−13	120	−24	32	436	3		
		8140	−10	123	+17	15	6	1		
		8138	+9	142	+13	12	12	4		
		8138	+16	149	+12	17	48	9		
		8134	+18	151	+13	20	73	8		
		8129	+54	187	+24	56	291	4		
		8129	+57	190	+23	59	630	7		
		8129	+60	193	+20	61	533	15		
		8129	+65	198	+23	66	582	20		
		8129	+68	201	+19	68	194	1		
		8129	+71	204	+21	71	582	12		
		(8)		(133)	(+6)		5,410	162		

Mean daily area for 31 days = 2,586
Mean 10 g + s for 31 days = 158.4

*Not numbered.
V = very good; G = good; F = fair; P = poor.
g = number of groups; s = number of spots.

PROVISIONAL RELATIVE SUNSPOT NUMBERS FOR JULY 1946

[Based on observation at Zurich except as indicated by asterisk. Data furnished through the courtesy of Prof. W. Brunner, Swiss Federal Observatory, Zurich, Switzerland.]

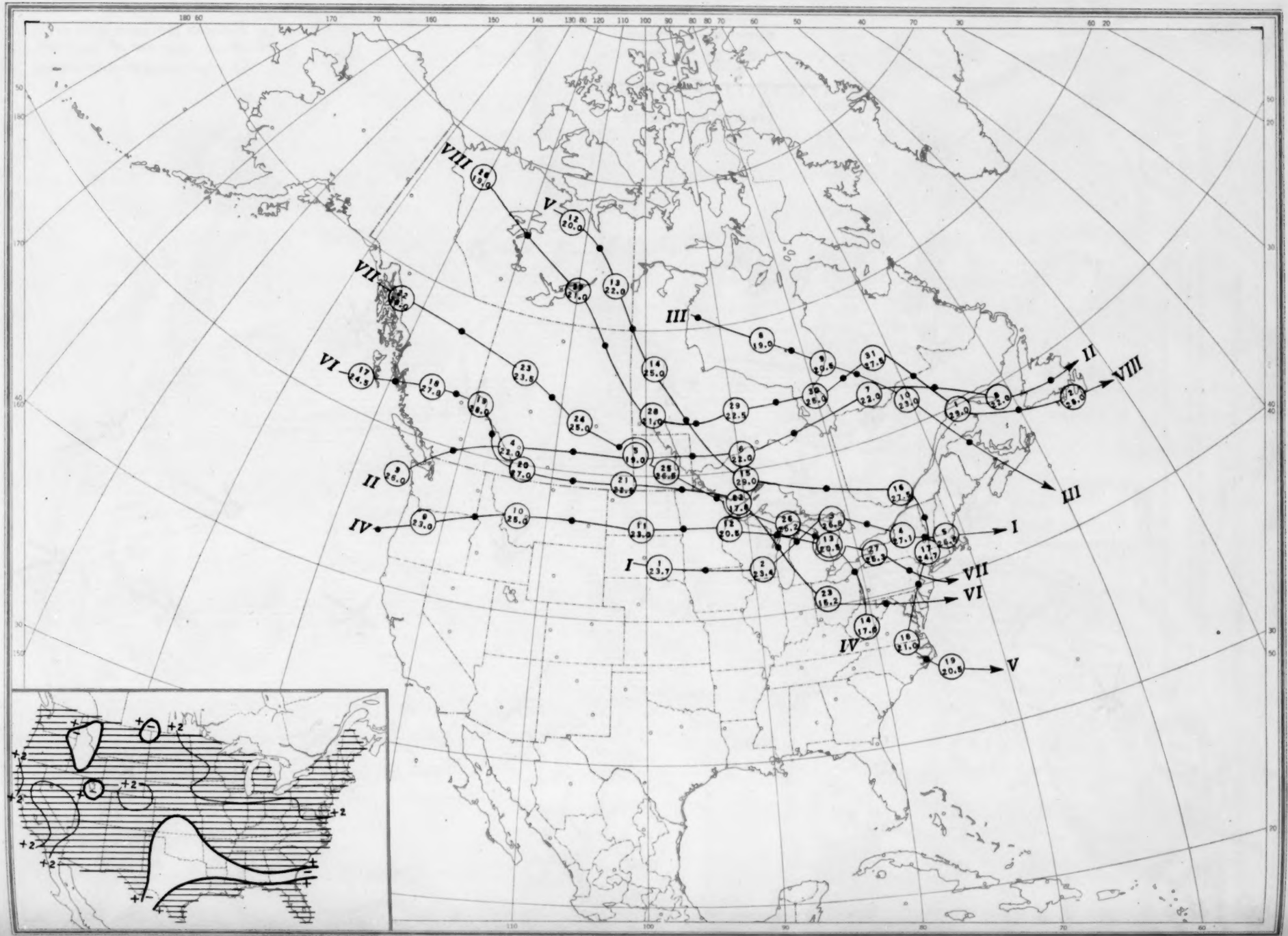
July 1946	Relative numbers	July 1946	Relative numbers	July 1946	Relative numbers
1	96	11	76	21	110
2	106	12	91	22	143
3	91	13	87	23	137
4	104	14	80	24	146
5	120	15	78	25	117
6	120	16	89	26	120
7	99	17	107	27	171
8	88	18	124	28	156
9	79	19	150	29	157
10	60	20	130	30	165
				31	174

Mean, 31 days=115.2

○

Chart I. Departure (°F.) of the Mean Temperature from the Normal, and Wind Roses for Selected Stations, July 1946

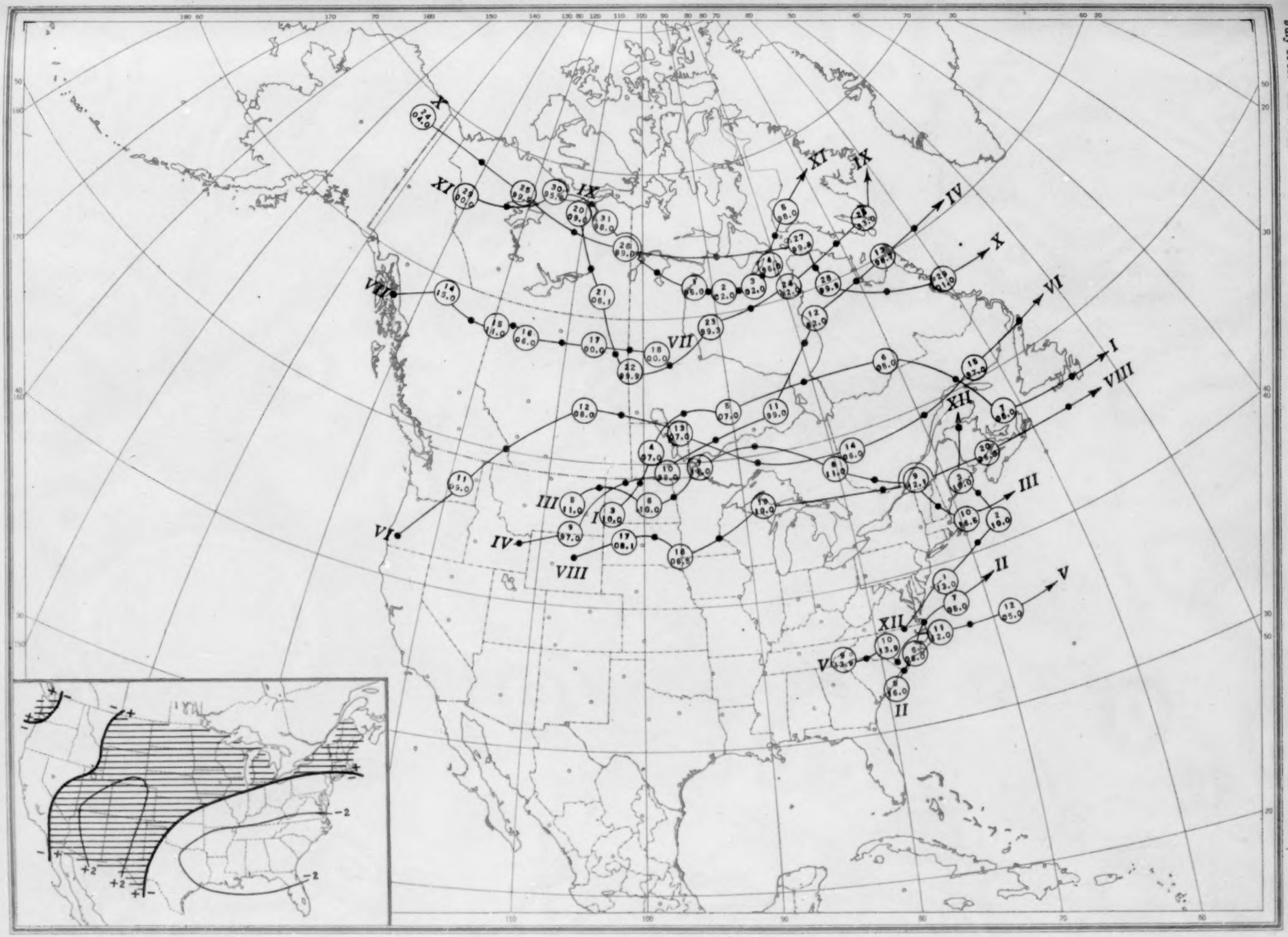
Chart II. Tracks of Centers of Anticyclones, July 1946. (Inset) Departure of Monthly Mean Pressure from Normal



Circle indicates position of anticyclone at 7:30 a. m. (75th meridian time), with barometric reading. Dot indicates position of anticyclone at 7:30 p. m. (75th meridian time)

Circle indicates position of anticyclone at 7:30 a. m. (75th meridian time), with barometric reading. Dot indicates position of anticyclone at 7:30 p. m. (75th meridian time)

Chart III. Tracks of Centers of Cyclones, July 1946. (Inset) Change in Mean Pressure from Preceding Month



Circle indicates position of cyclone at 7:30 a. m. (75th meridian time), with barometric reading. Dot indicates position of cyclone at 7:30 p. m. (75th meridian time)

Chart IV. Percentage of Clear Sky Between Sunrise and Sunset, July 1946

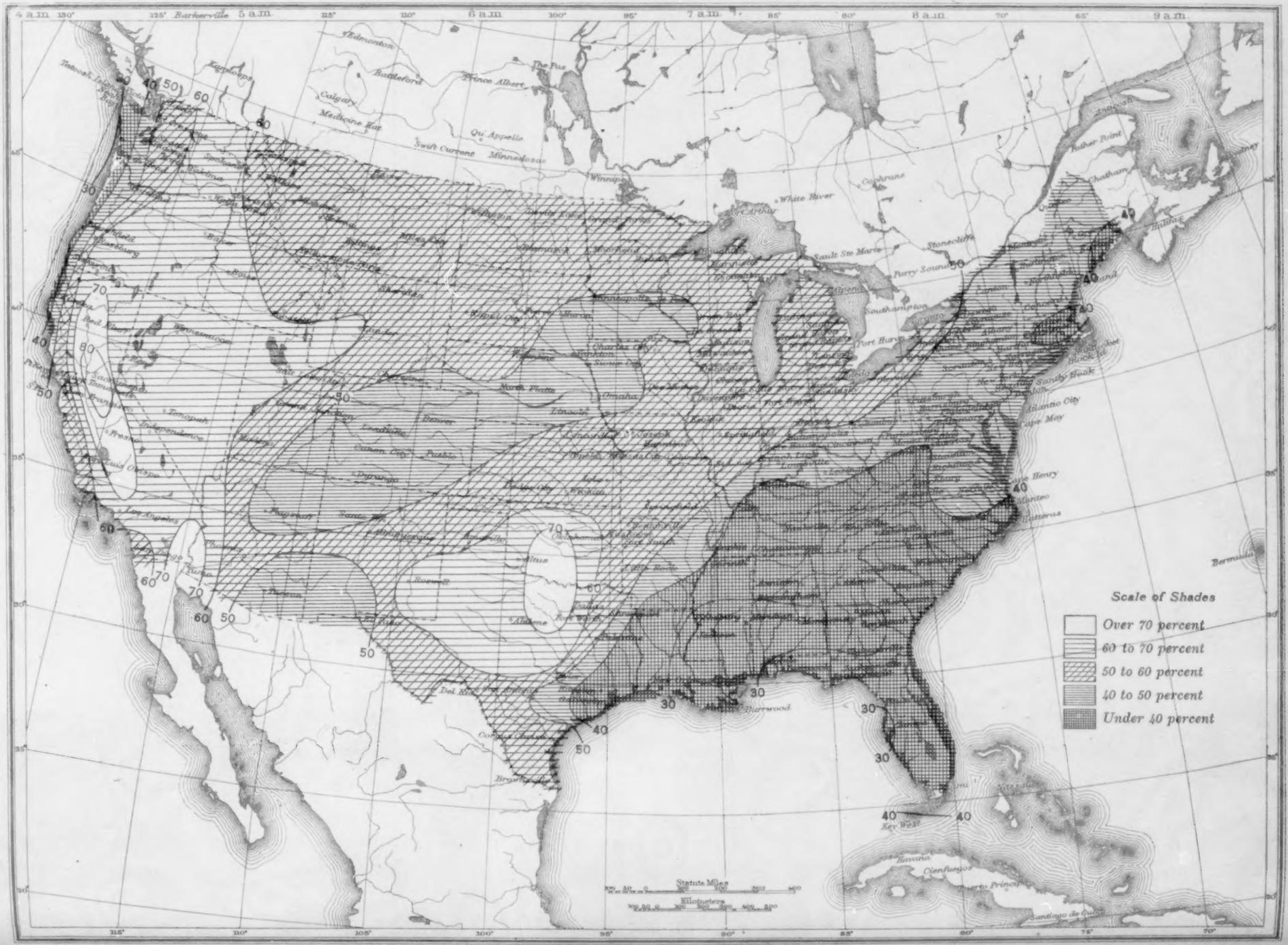


Chart V. Total Precipitation, Inches, July 1946. (Inset) Departure of Precipitation from Normal

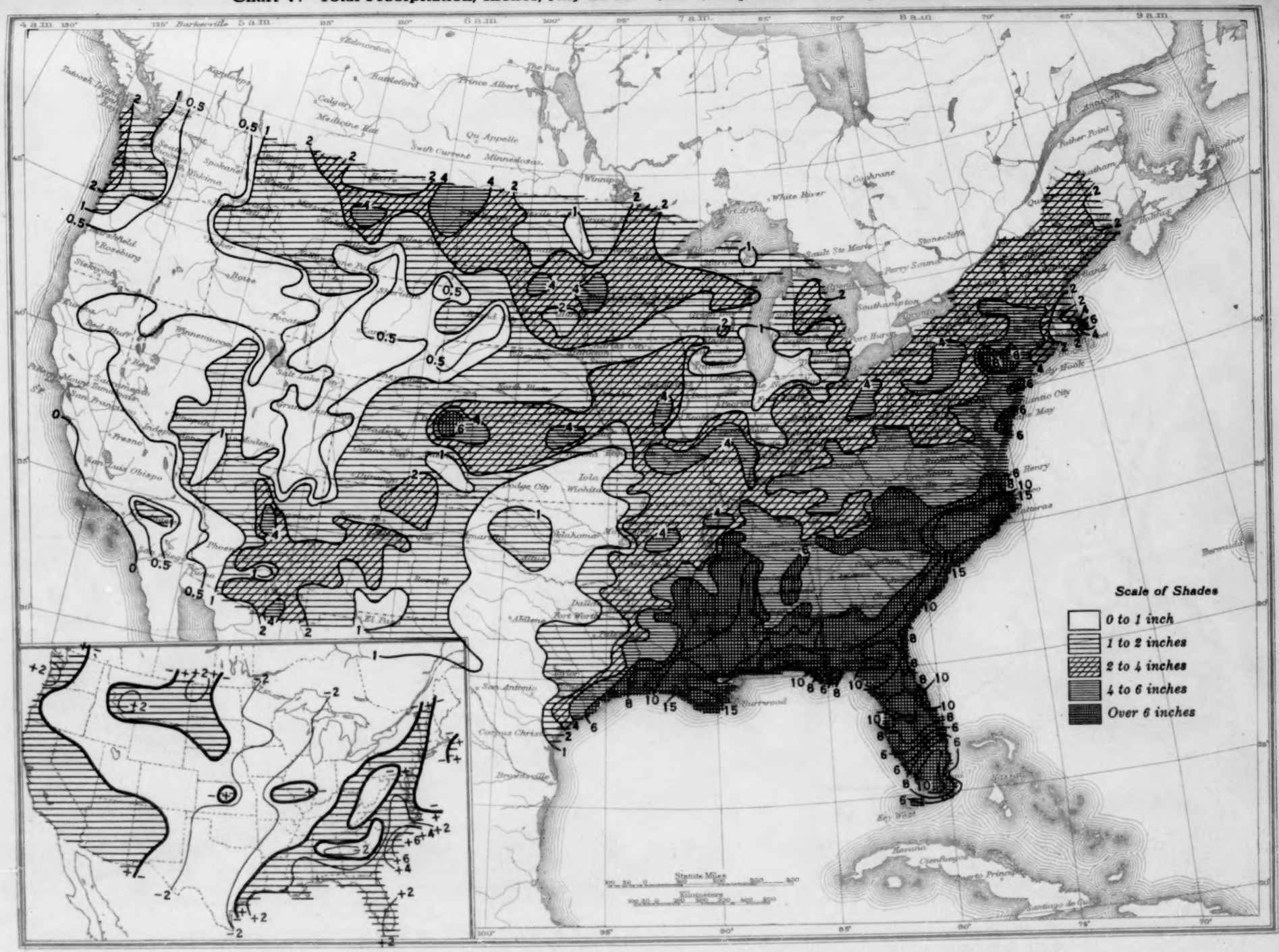


Chart VI. Isobars (mb.), at Sea Level and Isotherms (°F.) at Surface; Prevailing Winds, July 1946

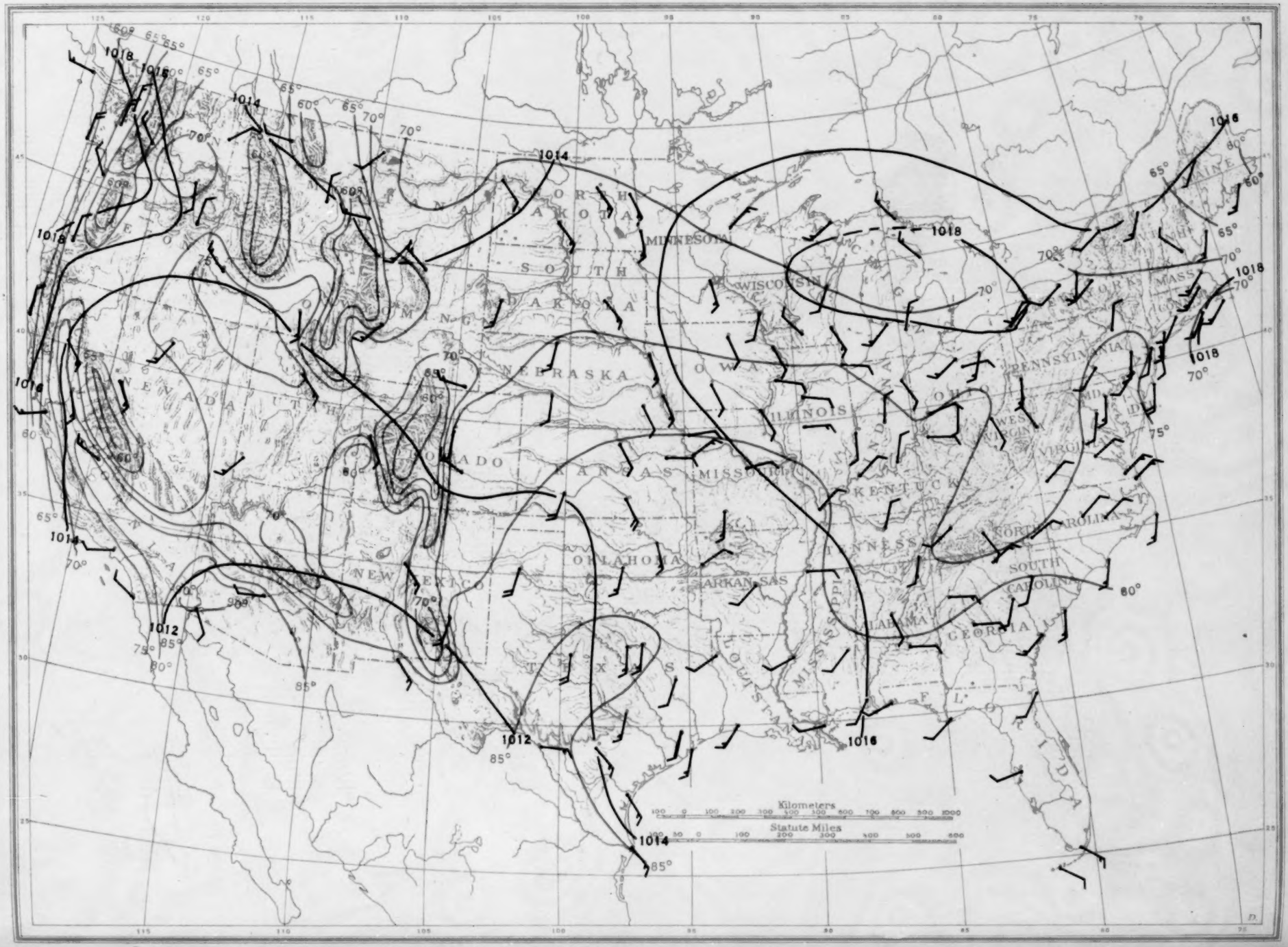
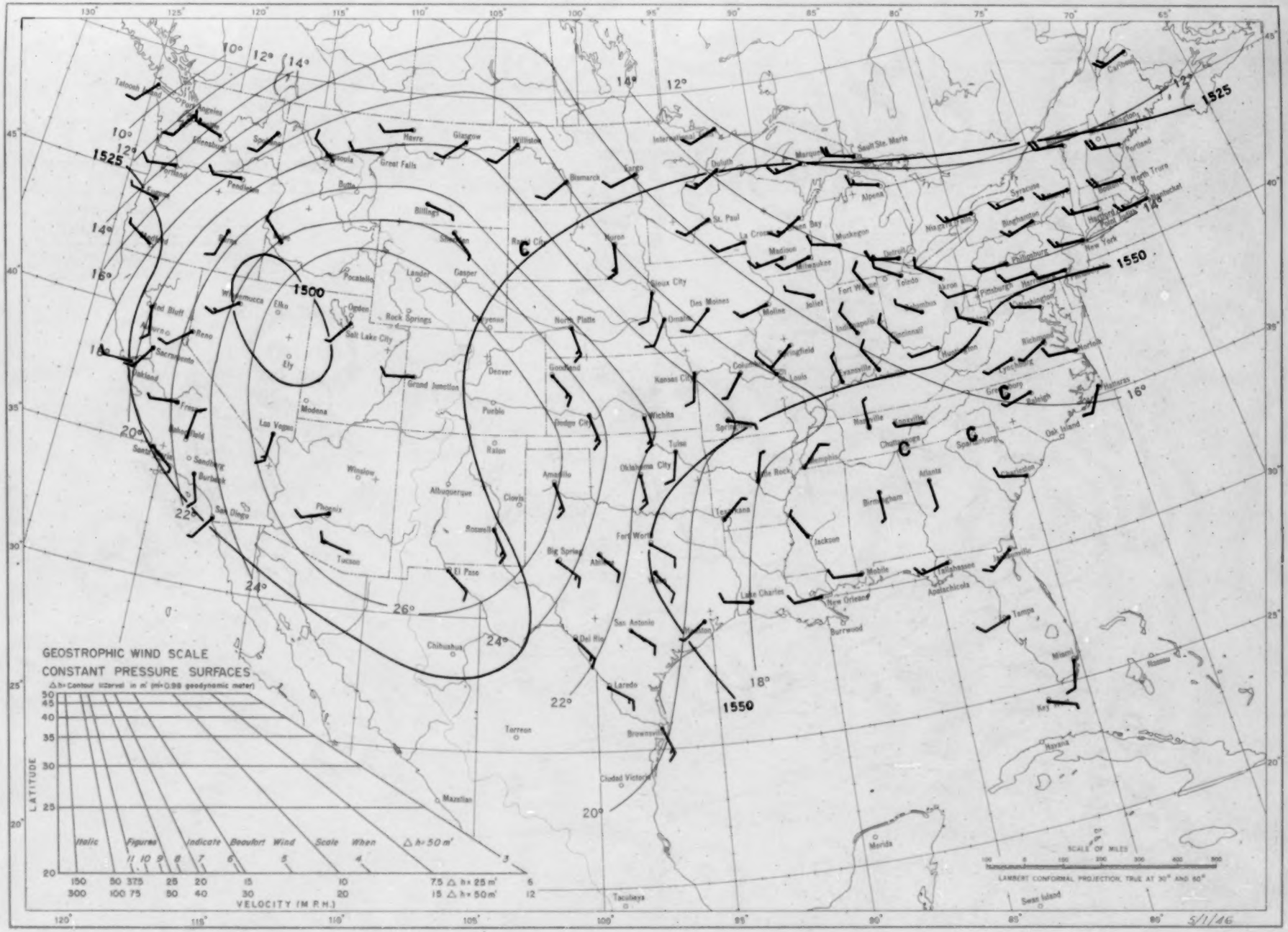
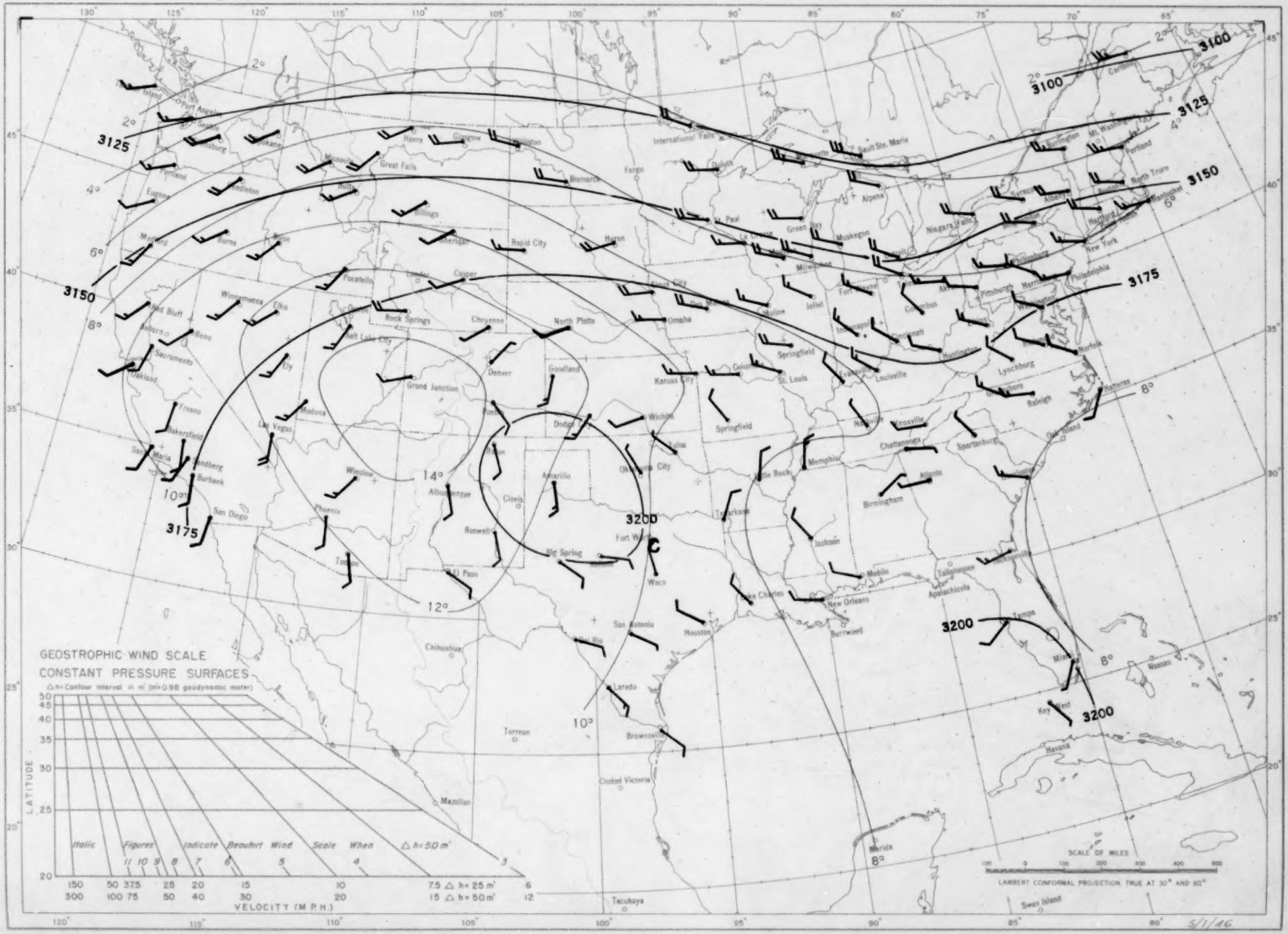


Chart VIII, July 1946. Contour Lines of Dynamic Height (Geopotential) in Units of 0.98 Dynamic Meter and Isotherms in Degrees Centigrade for the 850-millibar Pressure Surface, and Resultant Winds at 1,500 Meters (m.s.l.)



Contour lines and isotherms based on radiosonde observations at 0300 G.C.T., and winds based on pilot balloon observations at 2200 G.C.T.

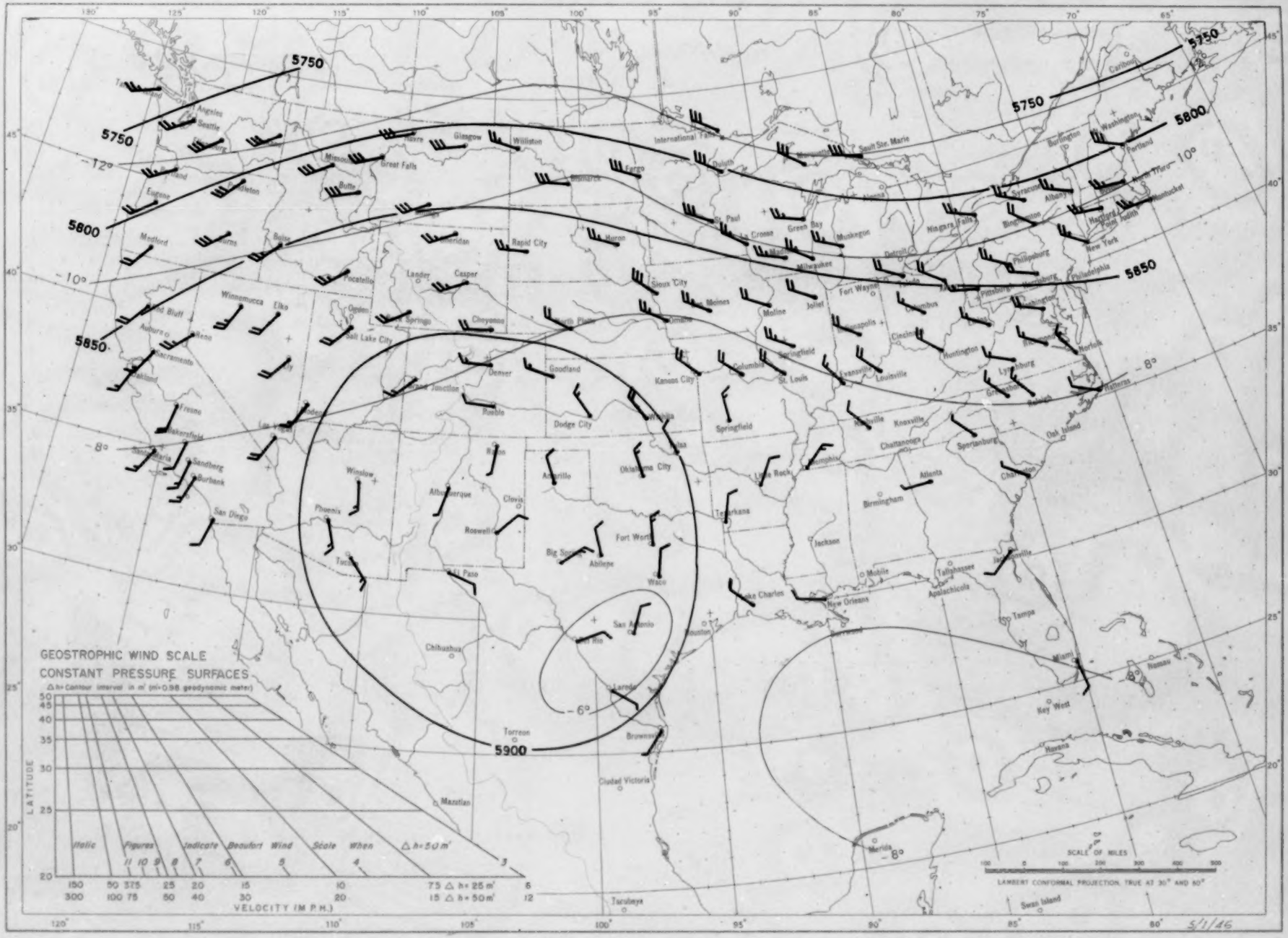
Chart IX, July 1946. Contour Lines of Dynamic Height (Geopotential) in Units of 0.98 Dynamic Meter and Isotherms in Degrees Centigrade for the 700–millibar Pressure Surface, and Resultant Winds at 3,000 Meters (m.s.l.)



Contour lines and isotherms based on radiosonde observations at 0300 G.C.T., and winds based on pilot balloon observations at 2200 G.C.T.

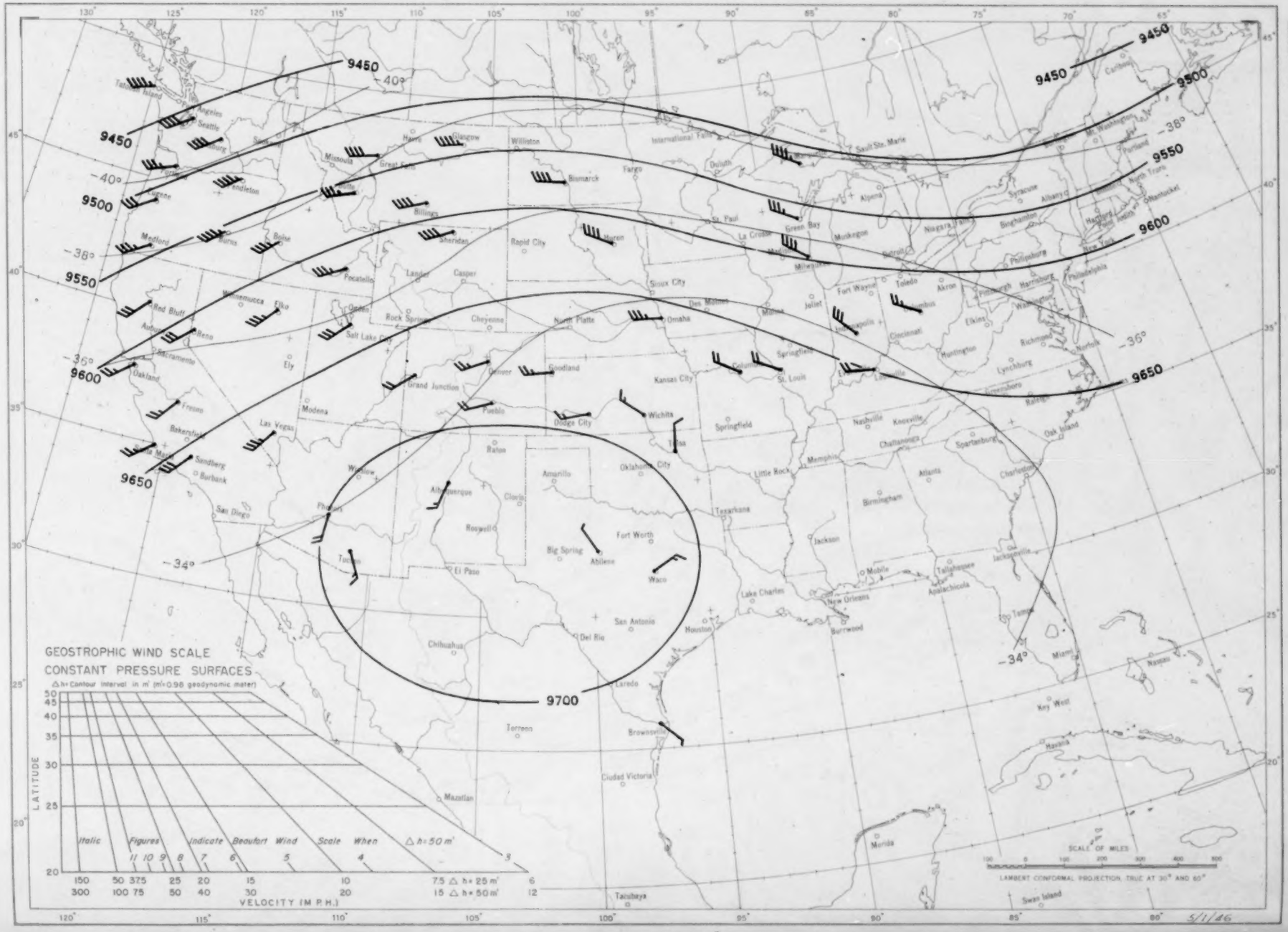
Contour lines and isotherms based on radiosonde observations at 0300 G.C.T., and winds based on pilot balloon observations at 2200 G.C.T.

Chart X, July 1946. Contour Lines of Dynamic Height (Geopotential) in Units of 0.98 Dynamic Meter and Isotherms in Degrees Centigrade for the 500-millibar Pressure Surface, and Resultant Winds at 5,000 Meters (m.s.l.)



Contour lines and isotherms based on radiosonde observations at 0300 G.C.T., and winds based on pilot balloon observations at 2200 G.C.T.

Chart XI, July 1946. Contour Lines of Dynamic Height (Geopotential) in Units of 0.98 Dynamic Meter and Isotherms in Degrees Centigrade for the 300–millibar Pressure Surface, and Resultant Winds at 10,000 Meters (m.s.l.)



Contour lines and isotherms based on radiosonde observations at 0300 G.C.T., and winds based on pilot balloon observations at 2200 G.C.T.